

THE COAST ARTILLERY JOURNAL



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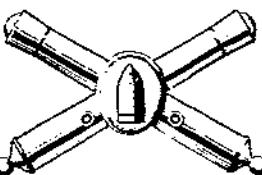
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SECURITY

—By Congressman James W. Wadsworth

THE readers of *The Coast Artillery Journal* may be interested in some of the discussions which have been going on in and out of the Congress relating to measures which would, it is alleged, tend strongly to keep us out of war, and measures which, in the event we are compelled to face a major emergency, would eliminate so-called war profits. In the first category we find the so-called neutrality legislation recently enacted by the Congress, and in the second category we find various measures, among them the Hill-Sheppard bill, sponsored by the American Legion. An examination of all these measures and a reading of the vast amount of literature concerning them leads to the conclusion that we should consider the whole thing as a single problem. The plain fact is that when we are talking about neutrality, involving, as one proposal does, the virtual withdrawal of American merchant vessels from the high seas in the event of war breaking out between other nations, we are talking about something that affects the security of the United States. And when we talk about legislation which would take the profits out of war and devise measures for so doing, we find that there, too, we are dealing with the security of the country. The multitude of well intending people supporting these measures are actually divided into several groups, each group contending for its own objective. We find a good deal of inconsistency as between the groups, although we realize that all of them are striving for peace and security. One group demands that we should not sell munitions of war to any belligerent and supports its contention with the argument that munition makers, seeking an outlet for their goods, encourage the war spirit the world over; and, further, that by forbidding the exportation of arms and munitions we shall avoid, in large measure, the danger of being dragged in. Another group demands that an embargo against exportations to belligerents cover not only arms and munitions, but all sorts of supplies and materials used by nations at war. This last proposal, of course, would involve a practically complete embargo of all exportations from the country and a consequent complete dislocation of our economic life. Whatever the discomforts which a limited embargo would bring upon us, I think it will not be denied that an embargo against the exportation of munitions or supplies, or against both, would work to the tremendous advantage of the well armed, well supplied and powerful industrial nations, as contrasted with weaker nations who, if attacked, would of necessity be compelled to search elsewhere for a part of their weapons and supplies

with which to defend themselves. In other words, our attitude of complete aloofness would give a striking advantage to the ruthless aggressor and tend to handicap very seriously his peacefully inclined victim. Nor is it certain, by any means, that a decision to impose embargoes reached by the Congress in 1937 would render us safer from involvement in a foreign war which might come ten, fifteen or twenty years from now. None of us can visualize all the circumstances which will accompany the onset of future wars. We are too apt to visualize the future in terms of recent experience, to wit, the World War. We should remember, however, that no two wars ever start in exactly the same way. What might seem to be an effective measure today may prove sadly ineffective a generation from now, and the danger is that, having adopted a rigid rule, we shall be forced to change the rule when confronted with new and unexpected conditions. Let us never forget that the change of a rule governing the neutral policy of the United States after a war between other nations has commenced, will be regarded as a hostile act by that belligerent nation which suffers as the result of the change. It is not my purpose to develop this discussion of the different suggestions regarding our neutrality in the future, but merely to point out, as I have just done, some of the inconsistencies and dangers which may result from such legislation—dangers to the security of the country.

Along with these proposals we are giving serious consideration, as we ought to do, to legislation which may take the profits out of war in the event that the United States becomes a belligerent. We are all familiar with the fact that in war time the prices of nearly all articles needed by the civil population mount upward rapidly and sometimes to dizzy heights, with the result that numbers of business concerns and individuals gain excessive profits and pile up large fortunes. It is not strange that such a spectacle should arouse bitter protest from the mass of the people who, in addition to contributing their young men to the military service, are called upon to struggle all the harder for the support of their families and the preservation of their homes. However, I think



Honorable James W. Wadsworth,
Member of Congress, 39th Dis-
trict, New York.

No nation will attack us in the face of
an announcement that all our resources
will be marshalled instantly

some of us make a mistake in believing that the troubles which overtake the mass of the civil population in time of war spring solely from the evil propensities of a few powerful war profiteers. The fact is that when war upon a large scale comes the forces tending to dislocate the economic structure become exceedingly powerful. Unless restrained by a fundamentally wise national policy they act automatically and universally and not at the behest of a few greedy men. Excessive war profits are very largely the effects arising from fundamental causes and their distribution among a few is accidental rather than planned in advance. We denounce the war profiteer and seek to lay the blame upon him, whereas he is merely the symptom of an economic disease. And it is a most difficult disease to cure. If we can legislate so that it may be ameliorated substantially in the event of another war we shall have registered a tremendous achievement. In the very exhaustive and interesting discussion of the general topic of war profits contained in the report of the Nye Committee, especial emphasis is placed upon the effect of wholesale borrowings by government in time of war. Every student of economics knows that when government borrows huge sums of money, one borrowing succeeding another in rapid succession, it puts forces in motion which drive upward the cost of all the things which the civil population must purchase. When government goes into the financial markets borrowing billions and piling up debt almost without limit it most certainly forces inflation in greater or less degree upon the country. It starts with credit inflation—the flooding of the country with promises to pay, the establishment of huge governmental balances, and the spending of money, currency and check money, behind which there is an ever decreasing measure of security. When that security becomes actually weak, then we are apt to have currency inflation. Where credit inflation ceases and currency inflation begins it would be very difficult to say, but that the second follows the first, if the first is over-done, cannot be denied. In any event whether it be credit inflation or actual currency inflation, the cost of living, measured by the purchasing power of money, goes bounding upward. A few may profit by this situation, but the great multitude suffers. Other things, such as the destruction of material incident to the waging of war, may contribute to high prices, but I venture to say that wholesale government borrowing is more influential than any other element. If this be true, and I believe it is, we can restrain and restrict the upward rush of the price level in time of war if we restrain and restrict to a minimum the borrowings of the government. How can this be done? Obviously we must reach a grim determination to raise as much money by taxation as is economically and socially possible. The closer we can come to the establishment of a pay-as-you-go policy the less we shall suffer from inflation prices, and the less cause we shall have of complaint against the profiteer. I admit that the objective here suggested is by no means easy of attainment and I keep reminding myself that if we overreach in a pay-as-you-go policy to the point where we confiscate and cripple in-

dustry and agriculture we may lose the war. And that is the last thing we would want to happen! Be that as it may, it seems to me that both the administration and the Congress should embark upon a painstaking study of the possibilities of war-time taxation; that it should keep that study thoroughly up to date as the years pass by; that based upon that study we should have ready for enactment, in case of necessity, a war-time tax bill and such other measures relating to price control as may seem wise. In other words, the economics of war should be planned in advance with sufficient perfection to enable us to put forth the maximum of agricultural, industrial and commercial effort and to reduce to a minimum the hardships inflicted upon those least able to bear them. It will be remembered that the War Department General Staff does this very thing in the military field, even extending its researches and planning into the industrial field, from which it must obtain supplies for the army. No one will doubt the wisdom, indeed, the necessity, of such planning. If it is wise for the General Staff to do it in the military field would it not be wise for the Treasury and the Congress to do it in the economic field?

And yet no sensible man will contend that embargoes against exportations, the denial of credit to belligerents, the withdrawal of the American merchant marine, anti-profiteer enactments and other measures of like intent, will confer upon the American people that much sought after security. This is a grim world and not all of its inhabitants follow the idealistic strivings of the American people. Nations can be just as jealous of one another and just as hungry for power and profit as individuals become from time to time. We may denounce aggressor nations led onward by the modern dictator, but our mere denunciation has little effect. America cannot be the master of the sentiments, mistaken though they may be, of other nations, any more than an idealistic individual can count upon mastering the sentiments of another intent upon seizing his property. The ruthless aggressor is very apt to seize wherever he can do it to his own advantage and without expending more than the loot is worth. Seldom, if ever, does a ruthlessly aggressive nation attack another when it knows in advance that there is extreme doubt of the success of the effort. The theory may be old fashioned and hard boiled and altogether unidealistic, but I thoroughly believe that if we want to enjoy the greatest possible measure of security, and we shall never be 100 per cent secure, we had better take steps to make it perfectly apparent to all the world that it will not pay any nation, or combination of nations, to attack us—that "it will cost too much, that the chances of success will be too slim. At this point some may say that I am advocating the building up of a huge military establishment on land and sea and in the air, and the constant maintenance of such an establishment in time of peace. I am proposing no such thing, first, because I believe it utterly unnecessary, and, second, I abhor any prospect of militarizing the United States. How can we accomplish what I have just suggested? In this connection the relation of an

incident which occurred back in 1920 might interest the readers of this magazine.

It will be remembered that in 1919, within a few months of the close of the World War, the Military Committee of the Senate and the Military Committee of the House of Representatives, each, embarked upon a determined effort to draft legislation in which should be written and established a proper military policy for the United States. No such thing had ever been attempted since the days of George Washington. He attempted it, but the Congress of his day rejected his recommendations, sound as they were. During all the years that followed, through all the wars we have fought, including the World War, we were without any military policy effective for its purpose and conforming with our democratic institutions. Our experience in the World War, heaped upon the experience in prior wars, convinced the Congress and the people at last that it was time to construct and adopt a policy. I need not recite the developments of the lengthy hearings, the progress of the work, or the nature of the legislation finally enacted on June 20, 1920, known as the National Defense Act. It stands today practically as passed seventeen years ago. It has given us a policy which the people understand and approve. It has saved us from militarism and at the same time given us an organization which, capable of quick, almost automatic, expansion, will prove a powerful weapon in our defense. In the course of our lengthy discussions and during the preparation of the bill the members of the Senate Committee, mindful of their own observations and impressions and after consultation with many others of wide experience, reached the conclusion that the Imperial German Government would not have challenged the United States with its submarine sinkings had the leaders of that government known in advance that America would throw her whole man power and all of her industrial resources into the contest. Looking back on it now, it would seem that the German Government was willing to goad us into war on the theory that we would be very, very slow at getting into it, and that we were the kind of people who would refuse to go into it with our whole man power. It would seem, further, that the German Government, having this conception of us, hoped to destroy the Allies before we could become effective. History will relate, I am sure, that the German Government was mistaken about us, and many historians will venture the further opinion that Germany would not have forced us into the war had she

known what was coming. At any rate, the members of the Committee, looking toward a military policy which would afford the maximum of security, reached the belief that it could be achieved by telling the world that we had decided to defend ourselves, for all time to come, to the last man and the last dollar, and that we were writing that determination into the law of the land. Thus the Committee reported to the Senate its proposed National Defense Act and included therein a condensed selective draft law to be invoked by the President on the authority of the Congress in the face of a major emergency. The bill as recommended passed the Senate. In the meantime the House Committee on Military Affairs had written its own bill. In large measure its provisions paralleled the provisions in the Senate bill. With one outstanding exception the differences between the two bills were ironed out easily and an agreement reached. The outstanding exception was the Senate proposal for the employment of a selective draft in time of war. This provision the House members did not feel able to accept and it was finally dropped out. I still believe in its soundness and have hoped all these years that the Congress would add it or its equivalent to the National Defense Act.

We look out over the world today and everywhere we see the weak threatened by the strong. We see whole peoples on the verge of war. Aggression is the order of the day. Millions bow to the will of a single individual intent upon teaching that might is right and in large measure succeeding with his teaching. We can't understand it. We hope they will come to their senses, but our hopes and our urgings seem of no avail. It is this very lack of influence upon the minds and sentiments of other nations which impels us today to seek security through neutrality laws and other enactments in which we attempt to measure a future which no man can measure and to lay down rules for our own conduct, heedless of inevitable error. It may be, it probably is, wise on our part to search studiously for security in this way. But if we are sanely realistic and candid with ourselves we must admit that no nation or combination of nations will launch an attack against us in the face of our announcement, evidenced in legislation, that all our resources of men and material would be marshalled instantly to repel that attack. The game would not be worth the candle. There lies security.

Why not "tell the world?" And the beauty of it is, the telling of it would not cost a cent!

PREPAREDNESS is the most certain way to keep out of war, and is the only way in which we can do so while maintaining just and essential interests.—Captain DUDLEY W. KNOX, U. S. Navy (Retired).

*The Arab Revolt was
made to order for his
eccentric talents*



COLONEL T. E. LAWRENCE. Englishmen saw a vision of a new Clive.

WAS LAWRENCE A GREAT SOLDIER?

By H. A. DeWEERD

Men and soldiers achieve their worldly reputations in a variety of fashions. Empedocles created a legend by walking into a volcano. Differing in death from the ordinary man he was rapidly converted into a god. The loss of Wolfe at the crest of victory at Quebec and the death of Nelson at Trafalgar made their names at once imperishable. The bitter vigil and lone wane on the rock of Saint Helena completed a legend that was born at Lodi, Marengo, and Austerlitz. An explosion of a German mine under the bows of the cruiser *Hampshire* added to the legendary stature of Lord Kitchener. Motorcycling into Bovington Camp one day in May, 1935, Colonel T. E. Lawrence suddenly swerved to avoid striking two boys, was thrown from his machine and fatally injured. Long before this, however, his legend was firmly established.

Colonel Lawrence acquired his prominence on the overcrowded canvas of World War leaders by disregarding the conventional rules for military portrait sitters. Attempting to avoid publicity he found himself overwhelmed with it. He had, it is true, a striking personality. No one could deny his scholarly attainments, doubt his harsh courage, his strange unselfishness, his uncompromising honesty. He possessed, in addition, singular gifts for self-analysis and a hard, glittering literary style. But these qualities in themselves would scarcely have brought

him more than passing renown. It was the sheer romantic appeal of his brilliant exploits in the Arab revolt which plucked him from obscurity. In contrast to the dull tale of trench warfare in Europe, where machines and mud swallowed up men and generals, Englishmen thought they saw in Lawrence's Arabian campaign a return of England's old glory, a vision of a new Clive rising out of the military counting house at Cairo. When the hero of the Arab drama put on the mantle of self-effacement, disdained the honors and customary rewards of service, he became the most widely publicized figure in English life.

After the first tidal wave of enthusiasm over Lawrence's campaign in the wastes of Arabia subsided, sober men were quick to question the true importance of his accomplishments. Two schools of thought developed. One held that he was a military and literary genius, an "amateur" who had conspicuously outperformed the professional soldiers in their own field. The other school discounted his military achievements and attributed Lawrence's reputation to the brilliant books in which he enshrined his own accomplishments with unrivaled skill. This school regarded him as a "make-believe" soldier who rode triumphantly into Jerusalem and Damascus on the rear platform of The Allenby Limited.

Captain B. H. Liddell Hart, who enjoyed a long post-war acquaintance with Lawrence, is the outstanding exponent of the first school. In his view Lawrence was a military genius "more steeped in knowledge of war than any of the generals of the last war." He compares him favorably with Marlborough and other great captains of the past. Exponents of the second school of thought are equally positive. General Smuts, upon whose advice the British government extended the subsidies which kept the Arab revolt alive, found Lawrence's achievements disappointing. Major John W. Thomason, an American writer, declared that without Allenby the Arab war would have been "mere rural assassination on a grandiose scale." One British officer summed up his impressions of Lawrence with the remark: "He was a comical little bastard."

A brief examination of Lawrence's conduct of the Arabian revolt may provide a basis for answering the question: was Lawrence a great soldier?

II

The Arab revolt was not a war in the ordinary sense of the term; it was an insurrection. Its objective was not so much to conquer Arabia as to deny the Turk its occupation. This insurrection was already under way when Lawrence, singularly well-equipped with first-hand knowledge of the terrain, political factors, and people, arrived on the scene. King Hussein of Mecca, encouraged by Lord Kitchener, Sir Henry McMahon, and others, had raised the standard of revolt against Turkey in 1916. At that time few officers in England or Egypt could see any advantage to the Allied cause in this event. After a success at Mecca, the Arabs dashed headlong at Medina where the Turkish garrison under tough Fakhri Pasha received them sharply. Under artillery fire the undisciplined Arabs broke in panic. Abdulla, one of Hussein's sons, captured a Turkish post at Taif, and then followed disappointments and confusion. Feisal, another son of Hussein, was licking his wounds in the Wadi Safra near Jeddah. The revolt seemed about to flicker out when Lawrence arrived uninvited to gauge the qualities of Arab leaders.

He had been serving up to this time in the intelligence office at Cairo keeping a record of the strengths of Turkish units. In this position Lawrence had distinguished himself by scoffing openly at "sixty-four generals doing nothing," by correcting the language of his superiors, and by appearing in outlandish modifications of the regular uniform. When he asked leave to see the Arab war in the field, the joy at his departure from Cairo was widespread.

Although small in stature, Lawrence was toughened by years of outdoor life spent on archaeological expeditions in Mesopotamia, by travel on foot in Arabia and Syria. He assisted in the survey of Sinai completed just before the war. Long study on medieval military architecture and



AIRCRAFTSMAN T. E. SHAW. Scholarly, harsh, strange, uncompromising.

reading of 18th Century and modern military writers had given him at least a superficial knowledge of the principles and practice of war. He spoke Arabic fluently and had intimate knowledge of tribal lore and customs. When put to the test he could out-perform the Arabs in what they regarded as the essentials of soldiery. He was said to be a dead shot with a pistol.¹ He was strong enough to hold a rifle by the muzzle at arm's length parallel to the ground. He could out-suffer and out-tire the best of the Arab tribesmen.

His colleagues at Cairo were not aware of it, but Lawrence possessed, in addition to his sharp sense of humor, a dramatic skill which enabled him to carry out a rôle which few Englishmen would have attempted and perhaps none other could have handled. His first meeting with Sherif Feisal, the native leader of the revolt, showed how strong was the impact of his personality on a stranger of utterly foreign make-up and how bold his manner.

It was a striking event. At the end of his camel ride from Jeddah to Wadi Safra, Lawrence sat in Feisal's tent surrounded by bronzed Arab warriors and chiefs. After Feisal had made the customary remarks of greeting to the uninvited British second lieutenant, he asked casually: "And how do you like our place here in Wadi Safra?" With perfect urbanity but with challenging inflection Lawrence replied: "Well, but it is far from Damascus." There was a sharp intaking of breath by the listening chiefs. It was as if a naked sword had been flung flashing above their heads. But in its descent Feisal caught it deftly by the handle, saying with equal urbanity: "*Praise God, there are Turks nearer than that.*" This brave reply satisfied Lawrence that he had found the true leader of the Arab war, and the sharp challenge of Lawrence fastened the vision of the Arabs on the jeweled towers and minarets of their ancient capital. Two years later Feisal and Lawrence entered Damascus in triumph.

It was not until six months later that Lawrence came to occupy his commanding position with relation to the Arab revolt. In the meantime, by intrigue and forcefulness he thwarted the political aims of the French mission under Colonel Brémont, and convinced the British authorities that English guns and subsidies alone were necessary to sustain the Arab movement and make it an important factor in diverting strength away from the Turkish forces in Palestine. This program pleased the British leaders in Egypt who wanted to keep their troops wrapped up in cotton wool, and they began to praise the paradoxical young man who had previously annoyed them.

After his appointment as liaison officer to Feisal, Lawrence's views on the strategic aims of the Arab revolt clarified. A period of illness gave him leisure to set down a new conception of the direction which the revolt should take. Up to this time Arab and English leaders held that the Arabs should make renewed efforts to capture Me-

dina. If this was not possible, the Western Front program of "killing Turks" was advocated. Lawrence knew that the Arabs were fighting for freedom, that killing Turks meant killing Arabs. Since freedom was a state only to be enjoyed by the living, Lawrence rejected the Clausewitz-Foch dogma that a decision could only be reached through the destruction of the enemy armies. He maintained that the Turk should be allowed to hold Medina, that the Arab movement should move northward along the Red Sea littoral supported by British sea-power. From a northern base raids should be conducted against the life-line of the Turkish garrison at Medina, the Hejaz railway.

The railway should be broken so often that the demands made on the Turks to keep it in operation would ultimately bring them to a state of collapse. The garrison at Medina could stay there to the end of the war, for all Lawrence cared. Casualties were to be avoided and killing Turks was to be regarded as a secondary objective. Pitched battles on all but the most favored terms were to be declined as too expensive a luxury for his ragged tribesmen. As if to mimic the formalism of the professional soldiers he had seen in action at Cairo, Lawrence put down his views of the Arab war in ironical, pseudo-scientific terms in *The Seven Pillars of Wisdom*.

The strategic backbone of the Turkish defense in Palestine and Arabia was the railway system leading from Constantinople to Medina. This system was of broad-gauge construction as far south as Riyaq; from this point south to Medina the line was of narrow gauge. The railway supporting the Palestine sector branched from the Hejaz line at Deraa and ran through the Yarmuk valley to Haifa, Jaffa, and Jerusalem. The main line was broken by the unfinished tunnels at Taurus and Baghche, and the maintenance of service was difficult, because the Turks were short of engineers and repair materials. Repeated destructions of the line and bridges would cause the Turks great embarrassment; if the railway could be permanently cut, the Turkish forces in Palestine and Arabia would be doomed.

Lawrence's plan did not find acceptance at once among the British officers at Cairo, but he ultimately got the Arabs to act upon it. As for the British staff, he said facetiously that he "could not take time to set up a kindergarten of the imagination for their benefit." When they insisted on operations against Medina or on premature efforts to cut the line at Maan and keep it cut, Lawrence had to plead, tongue in cheek, that the Arabs were too poltroon a lot to carry it out. This view pleased the vanity of the staff and enabled Lawrence to carry out his own program.

The instrument with which he had to work was the Bedouin tribe, camel-mounted, supplied with automatic rifles, machine guns, and light artillery by the British. The Arab soldiers were individually brave and physically tough. Being bred in the ways of tribal fighting they were steady under rifle fire but lacked the discipline necessary to face artillery fire. The Arabs fought for fun, freedom, or loot; and honor alone could keep

¹Lawrence only recounts two occasions on which he used a pistol. On one he shot his own camel by mistake; on the other he had to take several shots to kill a condemned outlaw groveling on the ground at his feet.

them to the harsh tasks of war when other inducements failed. Incapable of offensive operations at first, the Arabs had immense powers of mobility. Forty-five pounds of meal slung over the saddle of a camel enabled the rider to operate as far as a thousand miles from his base. The camel was not only a means of conveyance for the Arabs but a walking supply train as well, for Arabs ate camel-flesh in a pinch.

Since the Arabs operated in small bodies, Lawrence wanted as many Lewis guns or light automatic rifles as possible. Every third man in his bodyguard carried an automatic rifle. Lawrence's own weapon was an "air-Lewis" which fired "a marvelously dispersed pattern." The Arabs were not instructed in the repair of weapons. If a light machine gun jammed in one of their battles, "generally fought at eighteen miles an hour," it was to be thrown aside. The man was to carry on with rifle or pistol.

The theater of operations involved immense hardships even on those accustomed to its extremes of temperature. The harsh, inhospitable desert of rock and sand offered few comforts to Turk or Arab. The winters were cold and bitter; the summer heat was deadly. Lawrence said that if a man strayed from a column on the march in summer he soon died. "Not a long death, even for the strongest a second day in summer was all—but very painful; for thirst was an acute malady, a fear and



panic which tore at the brain and reduced the strongest man to a stumbling, babbling maniac in an hour or two; and then the sun killed him."

III

The first stage of the Arab revolt was the movement northward along the Red Sea from Yenbo to Wejh and the ultimate establishment of a permanent base at Akaba. The British naval force assisted in the successful attack on Wejh which shifted the balance of the Arab movement away from Medina where the revolt might well have broken down on the entrenchments and iron will of Fakhri Pasha. With morale raised by the success at Wejh, Lawrence and a force of tribesmen under fierce old Auda made a brilliant six-hundred-mile march to attack Akaba from the rear. The Turkish defenses faced the sea in anticipation of an attack from that direction, and Lawrence's attack from the rear was a complete success. He was able to report a loss to the Turks of 1,200 men in killed and captured at the cost of two Arab casualties. When the staff at Cairo compared this operation to the second battle of Gaza in which General Sir Archibald Murray contrived to kill 1,700 Turks at the cost of 3,000 British casualties, their estimation of the value of the Arab revolt underwent a rapid change. At the end of the second battle of Gaza the Turks were still holding Gaza, but at the close of his march Lawrence was sitting triumphantly in Akaba. Such were the rewards of surprise and mobility.

The move to Akaba brought the Arab revolt into close relation to the British campaign in Palestine. On the heels of the victory at Akaba came the news of a change in the British command in Palestine. Nervous Sir Archibald Murray was replaced by capable General Sir Edmund Allenby, newly arrived from France, who showed his elasticity of mind by listening with a kindly ear to Lawrence's pleas for assistance. This was the beginning of a long period of close coöperation between these two strange military partners and of an enduring friendship.

From Akaba Lawrence led Arab raids on the Hejaz railway while other Britishers: Peake, Hornby, and Garland kept pressure on the southern end of the line. The Arabs were captivated with blasting gelatine and entered upon the work with childish zeal. Some of the raids on the railways were models of planning and performance in which machine guns and Stokes mortars were used against the occupants of Turkish troop trains. Lawrence himself destroyed over seventy bridges. His associates perfected the art of rendering rails useless by exploding small charges linked in series under the sleepers so as to raise deformities, "tulips," in the rails. As the service on the Hejaz railway became increasingly difficult, the Turks countered by plastering the line with small garrisons which became cold meat for the Arabs in the last stages of the war. True to the forecast of Lawrence, the Turks held on to the railway like grim dearth, working themselves into a state of exhaustion trying to keep it in operation.

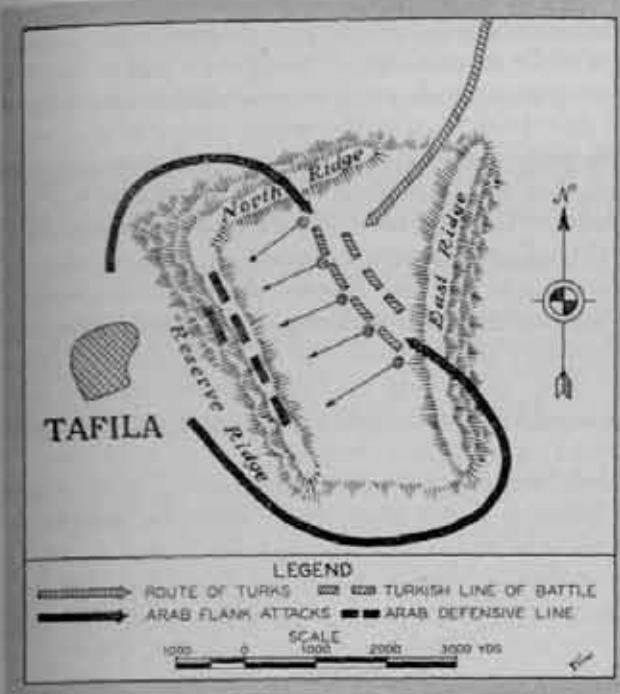
In the midst of his many minor successes at the railway, the fact is often overlooked that in his greatest effort, an

attempt to destroy the Yarmuk bridge, Lawrence met with failure. The destruction of this great bridge spanning the Yarmuk gorge would have broken the communications of the Palestine army for weeks, just at the time when Allenby was making his surprise thrust at Beersheba. The destruction of the bridge would have been a military prize of first importance. Unfortunately some of Lawrence's Arabs on this expedition were of doubtful loyalty. As Lawrence and his Arab porters were carrying bags of explosives down the gorge under the very nose of the Turkish sentry, someone dropped a rifle which went clattering down the rocky cliff. This aroused the sentry who fired blindly in the dark. The Arabs carrying the gelatine knew it would explode if hit by a rifle bullet; they dropped their burdens and ran. With the garrison on the alert, further attempts at the bridge were impossible. Lawrence retired bitterly disappointed.

General Smuts was particularly critical of Lawrence's failure to destroy the Yarmuk bridge holding that this was one of the few really important things the British government wanted him to do. Smuts declared that had the Boer commandos been given such an assignment, the bridge would have been destroyed. The background of Smuts' own guerrilla campaign gives these charges some weight, but the Arabs were not Boers. In his brilliant raid into Cape Colony in 1901-1902 Smuts did not have to depend on vacillating allies or clumsy soldiers. Lawrence made no attempt to conceal the bitterness of his failure, and Allenby showed his greatness by overlooking it. In the end it was swallowed up in the victory at Beersheba.

Falkenhayn's *Yilderim* force, which was organized to drive the British out of Bagdad, had to be diverted to the Palestine sector but could not stay the advance of Allenby who entered Jerusalem on December 11, 1917. Further efforts of Allenby to fight his way from Jerusalem to Jericho by occupying the Jordan valley were twice thwarted by the stubborn defense of the Turks. In this effort the Arabs came to assume an evermore important rôle in British plans. Allenby gave them a special staff, the Hejaz Operations Staff, quaintly called "Hedgehog" by the army. Colonels Joyce and Alan Dawnay added their keenness and industry to the direction of the Arab war while Colonel Sir Hubert Young laboured endlessly on problems of transport and supply which increased as the force grew in numbers. Armored cars and airplanes now appeared on the scene.

The position of Lawrence as quasi-chief of staff to the Arab revolt was rendered difficult by the existence of the Sykes-Picot agreement between England and France over the partition of Turkish territory in the event of an Allied victory. Lawrence held the Arabs in the traces by promises of keeping what they conquered and by British gold. So when the Sykes-Picot agreement became known among the Arabs, it required all his skill and patience to overcome its unfortunate effects. In the end he resolved to lead the revolt so wildly and successfully that the powers would be forced to recognize the Arab claims to their former territories at the end of hostilities.



TAFILA—The Turkish heralds of the disaster were few.

On January 25, 1918, Lawrence fought one of his few pitched battles with the Turks. It is known as the battle of Tafila and has become a sort of "amateur classic." Throughout the whole campaign Lawrence made every effort to avoid Arab casualties. He often angered the Arabs by his unwillingness to risk lives for what looked like certain military advantages. He sought to gain by mobility and intelligence what the orthodox generals tried to achieve by what he called "the murder war of formal engagements." Yet when the Turks, taking advantage of the retirement of Arab regulars from the village of Tafila, advanced to punish the villagers and tribes for recent depredations, Lawrence felt called upon to stand and fight.

The advancing Turkish force was a column of 900 infantry, 100 cavalry with two mountain howitzers and 27 machine guns under command of Hamid Fakhri Pasha. By all the rules of war Hamid should never have advanced such a distance from his base. Lawrence regarded this as "just the sort of hopeless thing a Turk would do." The weather was bitter cold; Lawrence had been up all night and was in a mean temper. He decided to punish the Turk for his folly.

Sending off Abdulla to delay and test the Turks, Lawrence had time to look over the terrain and make his plans. By the sound of distant gunfire and the slow rate of advance, he judged the Turkish force to be small enough to handle. He picked a plateau just east of Tafila for his battle-ground. This plateau, some two miles long and triangular in shape, was hemmed in by three ridges making up the sides of the triangle. The road to Tafila from the north enters the northeast corner of the triangle and runs through an opening in the base. Upon this route

the Turkish force advanced. Lawrence collected a few stragglers and formed them on the ridge at the base of the triangle and called it "Reserve Ridge."

Abdulla delayed the Turks for a time, but they brushed him aside and approached the bottle-neck of the triangle at the northeast corner where they were engaged by a small number of villagers. When Lawrence arrived at the northern ridge the villagers were firing their last ammunition in despair. He encouraged them with untimely bits of humor, pointed to his "Reserve Ridge" and told them to rally there and fill their pouches with ammunition. His own bodyguard held the northern ridge for a few moments longer while he made his way back to "Reserve Ridge" carefully counting his steps to get the exact range. The Turks then entered the bottle-neck, observed the noisy Arab force on the crest of "Reserve Ridge," and ponderously deployed their force in battle array on the flinty plain. They posted machine gun after machine gun in an orderly row on the plateau where there was not enough cover for a lizard. Then they settled down to spray "Reserve Ridge" with bullets.

In the meantime Zeid and other Arab tribesmen were arriving with machine guns and automatic rifles. Intent on engaging the Arabs on "Reserve Ridge," the Turks paid no attention to their own flanks. With the Turks pinned down and new forces arriving Lawrence coolly took a short sleep under the shelter of the ridge, an act which considerably heartened the Arabs. When the Turks were fully engaged Lawrence sent the newly arrived forces to attack the Turks on both flanks. The villagers knew every foot of the ground and were able to creep unnoticed to a position from which their automatic rifles completely dominated the line of Turkish machine guns. When they opened up suddenly from both sides the unprotected Turkish gunners were swept away. Confusion seized the Turkish force, the commander of which had never seen rebels fight like this before. The rout of the Turks was completed by a charge of horsemen from the Arab right flank and a noisy advance from "Reserve Ridge." All the Turkish guns and machine guns together with 250 prisoners were captured. Only a few stragglers returned to the Turkish base to tell of the disaster.

The victory at Tafila cost the Arabs sixty casualties for which Lawrence held himself accountable. The triumph, though complete, was by Arab standards dearly bought. Lawrence often reproached himself for the victory. In some bitterness of spirit and with sardonic humor he wrote his despatch to British headquarters. Of it he afterwards said:

It was mainly written for effect, full of quaint smiles and mock simplicities; and made them think of me a modest amateur, doing his best after the great models; not a clown, leering after them where they with Foch, bandmaster at their head went drumming down the old road of effusion of blood into the house of Clausewitz.

The British staff gave him the D.S.O. for his part in the Tafila victory, but he refused to wear it saying "all breasts would be covered with medals if every man wrote his own

despatches." He added an additional touch of bizarre humor shortly after by recommending himself for the Naval D.S.O. for capturing some Turkish shipping in a raid on the Dead Sea coast. Again at another date he recommended himself for "failing to shoot down two Bristol fighters which, in spite of recognition signals, machine-gunned my company from the air." These acts caused Lawrence to be regarded by the solemn members of the British staff as a sort of amusing madman.

In general the British officers were suspicious of his Arab robes, head-dress, and "carpet slippers." They could make little out of his strange military views, his wild eccentricities. Behind his sly and impish smile they often thought they saw a smirk of disdain. He was essentially an outsider. British troops often failed to recognize him as an Englishman.

IV

Allenby's plans for a final advance against the Turks in August, 1918, called for feints at the Jordan valley with the real thrust near the coast striking northward through Megiddo. The Arabs and Buxton's camel corps were to coöperate by attacking Deraa and cutting the railway. At the same time the Australians were to attack the line Es-Salt—Amman in conjunction with the Arabs.

Meanwhile on the Turkish side Falkenhayn, who had conducted a masterly retreat in Palestine, had been replaced by Liman von Sanders who had distinguished himself in the defense of Gallipoli. In order to salve Turkish feelings ruffled by Falkenhayn's too-obvious distrust of Turkish officers, Liman replaced many Turkish officers in positions of command and responsibility. He pinned his faith on a system of rigid defense which had served the Turk so well in the Gallipoli campaign. Unhappily for the Turks they did not have man-power or matériel sufficient in 1918 to carry out this type of defense. As a consequence when the collapse came it was overwhelming.

Prior to the great attack, Lawrence had heard that some 2,000 riding camels attached to the British force had been freed for transport work through the reshuffling of units. At dinner with Allenby and his officers, he heard the quartermaster gravely say how fortunate this was, since it would bring the transport column of X Corps up to strength. Lawrence who coveted this priceless mass of camels which would give the Arabs tremendous added mobility, loudly remarked: "Of course, *riding camels* are not fit for *transport work*." Since every officer was supposed to know his animals, the embarrassed quartermaster could only "hem and haw" while Allenby, who cared little for the fetish of "strengths," turned the camels over to Lawrence. In return Lawrence promised to put 1,000 men in front of Deraa any day Allenby said. It was precisely this type of manipulation which showed Lawrence's aptitude for diplomacy and management of men. If he was not a great general, not even his enemies could deny that he was a prince of "fixers."

Allenby set his program calling for the attack of the Arabs on Deraa for September 16, 1918, saying that "three men and a boy with pistols before Deraa on September

16 would be better than thousands a day or two later." In order to bring about this stroke Lawrence had to perform some of his most masterful "fixing." He had to raise the Rualla tribe in revolt, a feat rendered difficult by the bitter old chief Nuri Shaalan who waved a copy of the Sykes-Picot treaty in his face. Lawrence quipped that when confronted by two contradictory British promises, it was best to believe the one of latest date. In the end his earnestness and Feisal's zeal brought the tribe in line. Then, when all seemed ready, old King Hussein threw a monkey-wrench in the machinery by decimating void certain military appointments which Feisal had made. Following Prince Bismarck's example in the Ems telegram incident, Lawrence garbled Hussein's wire so as to save face all around. It was a trying time.

As a first step in the destruction of the Turkish armies in Palestine it was necessary to draw the attention of Liman von Sanders away from the vital coastal region. To accomplish this Buxton was to cut the railway near Amman and the Arabs were to menace Deraa. Buxton cut the railway at Amman but could not shake the garrison. On August 30, 1918, the Arab army began to concentrate at Azrak. These moves and Allenby's fake concentration in the Jordan valley convinced Liman that the Jordan was the decisive theater in the impending operations, and he was not given time to change his mind.

The operations against Amman and Deraa involved the greatest force of Arabs ever brought together during the war. Upon Lawrence fell the task of coöordinating the relations of Arabs and Englishmen who were working together for the first in the same traces. Lawrence had promised Allenby to have the Arab army before Deraa on September 16. True to his word, the Arabs took Umataiye on September 14, and on the following day began demolitions on the railway capturing Tell Arar and Mezerib. These activities so engaged the attention of Liman von Sanders that he made a personal visit to Deraa. There he received, before the Arabs cut the telegraph wires, a final message from Constantinople. This was one of those bits of comedy which invariably manage to find their way into every crisis. Instead of the long-expected news of reinforcements, the message from the War Ministry asked that Liman donate a prize for the winner of the sack race at the games of the Constantinople garrison. With this encouragement Liman could go back to fight his last decisive engagement with Allenby.

At 4:30 A.M. on September 19, 1918, Allenby's guns on the coastal plain lashed out in fury. The thinly held Turkish positions crumbled before the attack on a wide front. Chauvel's cavalry swept through the breach, and drove relentlessly toward Nazareth. Liman's plans toppled like a house of cards; he barely escaped capture. The Turkish Seventh and Eighth Armies were destroyed as fighting units, and only the Fourth Army across the Jordan had a chance to escape disaster by hasty retreat. The garrison at Amman had to retreat to conform to this movement. The Arabs rose to their opportunity. Against the tired and confused columns of the Fourth Army they

struck repeatedly, cutting off stragglers, throwing the lines into confusion, killing in frenzied abandon. In reprisal for Turkish atrocities on the villagers, the Arabs took no prisoners.

Only when they encountered the steel core of the broken Fourth Army did the Arabs recoil. These were the German machine-gun companies whose cool, hard fighting aroused the admiration of Lawrence. He wrote:

They fought magnificently and repulsed us time and again despite our hardness. . . . I grew proud of the enemy who had killed my brothers. They were two thousand miles from home, without hope and without guides in conditions mad enough to break the bravest nerves. Yet their sections held together in firm rank, sheering through the wrack of Turk and Arab like armoured ships high faced and silent. When attacked they halted, took position, fired to order. There was no haste, no crying, no hesitation. They were glorious.

It would be difficult to find a warrior's admiration for a worthy foe expressed in nobler words.

On September 27 the Arabs entered Deraa and on the following day General Barrow's 5th Cavalry Division reached that city. With the retreat to Deraa cut off, fragments of the Turkish Fourth Army streamed into the hills where they were attacked by low-flying planes or shot ingloriously in the back by swarming Arab tribesmen. September 29 saw the advance of General Barrow's force, with Lawrence on the flank, push on toward Damascus.

During the collapse of the Turkish Fourth Army Lawrence seemed to be everywhere at once, dashing across the country in his Rolls tender, the *Blue Mist*, holding the Arabs in check here, urging them on at another point. One of Barrow's sentries reported a meeting with Lawrence as follows: "There's an Arab out there in a Rolls Royce, speaks perfect English and seems to be in a hell of a rage." Physically he was exhausted but his restless mind was constantly wrestling with the problems of setting up an independent Arab state which would fulfill his pledges to the tribes.

There was no battle for Damascus. The military governor, Ali Riza Pasha, was sympathetic to the Arab cause, and Feisal's friends had raised his flag in the city before the last of the Turks had left. The British 5th Cavalry Division and the Australian Light Horse reached the outskirts of Damascus on September 30. The following morning Ali Riza Pasha turned the city over to General Barrow. With characteristic modesty Lawrence insisted that he remain outside while the Arab chief Nasir, "who had fought in fifty battles," should have the privilege of honorable entry.

Uncritical champions of Lawrence sometimes write as if the British were a mere annoyance to the Arabs in the capture of Damascus. In rebuttal Colonel Sir Hubert Young ironically observed that when the troops entered Damascus, Lawrence had at least 600 men while General Chauvel did not have more than 15,000 at hand! The truth is that Damascus was not captured by anyone. It was turned over to the Allies by the friends of Feisal who would not have done so to the British alone.

The occupation of Damascus brought the end of Lawrence's military career in the Arabian revolt. It is true that in the days following the occupation he performed an amazing feat of *legerdemain*, bringing order out of indescribable confusion and creating a working Arab administration which survived for three years without any important change. These accomplishments were so impressive that they led some officers who worked with him to believe that Lawrence's supreme talents were, after all, not military but administrative. After turning the city over to Feisal and Allenby, Lawrence begged to be released.

After a dash forward toward Aleppo, the British and the Arabs were brought up sharply by the heroic stand of Mustapha Kemal Pasha with the fragments of a Turkish-German force. When the armistice closed upon the Arab war, grim old Fakhri Pasha was still "defending" Medina with 8,000 Turkish troops. He ignored the Armistice, disdained all offers of surrender replying: "I am a Mohammedan; I am an Osmanli. I am the son of Bali Bey. I am a soldier." Not until the sick old man was betrayed by his mutinous troops did the Arabs enter Medina. This was in January, 1919!

V

The conquest of Damascus was the supreme moment of Lawrence's life. The love of some person provided the inspiration which drove him "to write his will across the sky in stars." But by the time he entered Damascus "death took this person into his quietness." There was no further abiding direction to his life. He shunned society, sought relief in diplomacy, writing, and finally tried to hide himself in the Royal Tank Corps and the Royal Air Force. It was of no avail. He left behind him a rich legacy of books, but found no suitable employment for his great talents.

In order to judge the accomplishments of Lawrence as a soldier it is necessary to determine what he did with the resources at his disposal. He took charge of the Arab revolt at a moment when it appeared to be dying. He gave it new life and above all a new objective. His strategy, though unorthodox, was founded upon a thorough knowledge of the people, terrain, and political factors. He had to coördinate the activities of hundreds of allies of widely different interests. His success in this rôle evidenced a rare ability at persuasion and diplomacy. His leadership of the Arabs was carried out almost entirely by working behind the mask of some Arab leader. "To the average Arab tribesman Lawrence was and still is just another Englishman who helped them in their struggle against the Turk."

A good deal of his success may be attributed to the fact that he had an obliging and stupid adversary. Whenever the Arabs ran into German detachments or even unshaken Turkish units they made little headway. Few commanders find an enemy so willing to play their own game. His intelligence service drew from the whole country-side. Many of the Arab leaders were erstwhile allies of the Turks and knew the character and mentality of the opposing leaders like an open book. Long before Allenby exposed the weakness of the Turkish armies in Palestine,

Lawrence knew that the army was a hollow shell.

He showed more audacity and imagination than most professional soldiers, but in all probability would not have distinguished himself in any other campaign. The Arab revolt was made to order for his eccentric talents. Allenby said Lawrence would have made a poor subordinate commander. He had to be commander-in-chief or nothing. His contempt for the narrowness and arrogance of the professional British soldier was abiding. He used to say after the war: "They did their best, but it was a pity it was such a rotten best."

The Turks would have lost the war in Palestine even if Lawrence had never left Cairo. But his intervention saved the British thousands of casualties. It has been estimated that Lawrence engaged Turkish forces amounting to fourteen times the number of the Arab army. For this the British paid the Arabs a subsidy of £200,000 a month. These were flush times for the Arabs who in the past fought mostly for camels or for fun. General Smuts said wistfully that the Boers fought their whole war on a month's subsidy for the Arabs. Yet wars can no longer be fought "on the cheap," and the subsidy saved thousands of British lives.

Captain Liddell Hart and Captain Hoffman Nickerson, among others, hold that Lawrence was one of the first soldiers to appreciate the increasing part which guerilla warfare will play in future conflicts. The Arab campaign

demonstrated how great a pressure could be exerted on the vulnerable supply system of an opponent by a small but mobile force of irregular troops. Since the ability of a state to wage war under modern conditions depends to a great extent on its industrial and transportation system, future wars may well be distinguished by the attacks of highly mobile air or land units against these resources. It would be absurd, however, to assume that raids can be carried out in the future against a strong, war-experienced state by a handful of undisciplined irregulars under a highly imaginative leader. To be made effective such raids will have to be carried out by a highly-disciplined corps of experts. The establishment of parachute companies in certain European armies may be a step in this direction.

In summary: Lawrence belongs not to the select company of great captains, but to the small group of great guerilla or "irregular" warriors of history: Clive, Forrest, Garibaldi, and De Wet. He only served in one campaign. In the reunion beyond the Styx he will probably be found in the company of Homer, Herodotus, Froissart, and Marshal Saxe. One can almost hear him saying: "War is a science so obscure and imperfect that custom and prejudice confirmed by ignorance are its sole foundations and support." His literary and administrative talents were greater than his military gifts. The impartial muse of history, when she gets around to it, will in all probability confirm this judgment.

WE ARE THE ONLY NATION in the world that waits till we get into a war before we start getting ready for it. We were mighty glad to listen to General Pershing's advice during the war, when we trusted the lives of millions of our boys to him. I don't see why they can't listen to him now. Pacifists say that "If you are ready for War, you will have one." I bet you there has not been a man insulted Jack Dempsey since he has been champion.—WILL ROGERS.

ANTIAIRCRAFT MACHINE GUNNERY

By MAJOR E. H. TALIAFERRO, JR., C.A.C.

IN any discussion of antiaircraft machine gunnery and its fire-control problem, there are three features of paramount importance, which must always be borne in mind: the mission of the weapon, the human element, and the limitations of the matériel.

The primary mission of the antiaircraft machine gun is the protection of troops, airdromes, railheads, and other important elements against attacks by low-flying aircraft. It has the further mission of denying the use of low altitudes to enemy aircraft within range. The mission of attack aviation, the tactics of which are characterized by surprise and high speeds at low altitudes, is to destroy all those things which the machine gun is charged with defending. It is therefore obvious that the primary target of the machine gun will be the attack plane. Our first effort should be toward the solution and perfection of an effective fire-control method for use when firing on this type of aircraft.

The human element always will play a very important rôle as long as we continue the use of the manually-operated machine gun. The weapon itself has certain known limitations, which vary but little and have been determined by actual tests. The human equation can never, to a certainty, be determined beforehand. Usually mental and physical alertness, and a normal physique are the essential qualities of a machine gunner. Oftimes a man possessing or seeming to possess these qualities to a marked degree, will turn out to be a poor gunner. Actually the only certain means of determining whether or not a man is a good gunner is by firing on a towed sleeve target. The great importance of the human element, and the limitations of the matériel will be discussed in more detail later.

Fire-control methods relating to antiaircraft machine gunnery date from the time that man, first armed perhaps with a rock, later with a bow and arrow, and still later with a shotgun, took aim at a bird in flight and let fly with the missile at hand. He soon learned that it was necessary to direct his missile at some point in advance of his quarry and in prolongation of the line of its flight,

and that it was also necessary to make some allowances for the speed of the bird, the action of gravity, the wind, and various other things. Some of these early marksmen, either from experience or because they were naturally adept at this sort of sport, became quite proficient in bringing down their quarry. Men of keen vision and steady nerves were the most successful, and so it remains to the present day.

Before discussing further the individual qualifications and methods of training of antiaircraft machine gunners,

it would be well to look into the matter of machine-gun fire control. In nearly all methods selected, tracers will be used as an aid to control. They who have had experience in controlling or attempting to control machine-gun fire by tracers, will readily grant that the task is not simple.

Fire control for antiaircraft machine guns divides itself into two broad, but distinct classifications:

1. Control up to the burn-out point of the tracer.

2. Control beyond the burn-out point of the tracer.

The approximate burn-out points of the tracer ammunition, now in general use, are, 1,850 yards for the .50 caliber, and 1,000 yards for the .30 caliber. In addition to the burn-out point there is another very important point on the trajectory known as the grouping point. The grouping point may be broadly defined as that point on the trajectory beyond which the paths of the tracer and ball ammunition separate. Up to the grouping point, the times of flight and trajectories of the ball and tracer ammunition may be assumed to be identical. After the grouping point is passed, the trajectory of the tracer is slightly higher and



German Machine Gun in Action. Note one-meter range finders and method of support.

When a low-flying plane launches its attack, there is little time for mental gymnastics.

the time of flight slightly less than that of the ball ammunition. The approximate grouping points of the tracer ammunition now in general use, are 1,000 yards for the .50 caliber, and 600 yards for the .30 caliber. It is obvious that, for a distance of 850 yards in the case of the .50 caliber, and 400 yards in the case of the .30 caliber, the trajectories of the tracer and ball ammunition are not the same.

In order to intelligently control fire beyond the grouping point, the actual differences between the trajectories and times of flight of the tracer and ball ammunition must be known. These differences have been determined by proving-ground firings, and are available to any one. When the high speeds of the present-day aircraft are taken into consideration, it will be seen that a very small error in the time of flight means the difference between a hit and a miss. The fact that the trajectories and times of flight of the tracer and ball ammunition are not the same, has been known for a great number of years. Battery commanders and individual gunners, controlling fire by means of tracers, have compensated for these differences by increasing the vertical and lateral leads.

It seems logical that control up to the burn-out point of the tracer should be further divided as follows:

- a. Control (individual or central) up to the grouping point.
- b. Control (individual or central) beyond the grouping point.

So much for types and classifications of tracer control. The real intent of this discussion is to bring out a few points pertaining to individual tracer control, especially for fire at short ranges where the time element is of vital importance. Rarely, if ever, will there be time for the computation and transmission of firing data, in case of a surprise attack by low and fast-flying enemy aircraft. In order to successfully meet this type of attack, it is virtually certain that individual tracer control must be resorted to.

Individual control may be exercised by a gunner either with or without the aid of a sight of some sort. Usually, when a sight is used, the initial vertical and lateral leads are set on the sights immediately prior to the opening of fire—on some types of sights, the angle of approach must also be set. Thereafter the fire is controlled individually by each gunner from observation of the tracers from his own gun. When individual control is exercised solely by means of tracers, and without the aid of a sight, the usual procedure is for each gunner to take the initial travel and superelevation leads in terms of "target lengths." The travel lead, usually expressed in terms of linear measurement, is equal to the speed of the target multiplied by the time of flight for any particular range. The product of this multiplication is divided by the length of the target for determination of the lead in "target lengths." Travel leads, computed in this manner, are practically correct for any angle of approach. After the travel lead has been estimated, the gunner points his gun at an imaginary point ahead of and along the linear course of the target,

elevates his gun above this point the number of "target lengths" required to care for the superelevation, and opens fire.

For ranges up to about 700 yards this method can, if the gunners are carefully and intelligently trained and coached in taking and keeping the proper leads, be made very accurate, especially when the number of "target lengths" leads is not too many. The results obtained by a machine-gun battery in the application of this type of fire control, may be said to vary directly in proportion to the amount and quality of training it has received. The training process is long and laborious, but the results that are possible are well worth the effort.

Constant training must be given the personnel of a battery in the estimation of target speeds and ranges. They must be thoroughly familiar with the appearance and characteristics of the various types of foreign aircraft as well as our own. It is of the greatest importance that both the cruising and maximum speeds of all types of aircraft be known.

Needless to say, all estimations, as to target speeds and ranges, should be carefully checked as to their accuracy. This can easily be done by having the pilot of the towing plane fly at prearranged altitudes and speeds. If possible, two-way radio communication should be established between the plane and the ground during all tracking and estimating missions—the altitude and speed of the plane can be checked from time to time. The direction and intensity of the wind should be known in order that the air speeds may be converted to ground speeds. If there be no radio available, communication should be established by means of visual signal-panels. The Air Corps will gladly coöperate, for our problems are theirs also. It is important that during the period of training the plane actually tow a sleeve target.

Knowing the altitude, it is only necessary to obtain the angular height of the target in order to calculate the range. Knowing the altitudes and angular heights, it is a simple matter for the battery commander to have a chart constructed from which the slant ranges can be readily obtained. The various leads in "target lengths," for speeds varying from 100 to 200 miles per hour, and for ranges up to 1,000 yards, should be memorized by all battery personnel, who are associated with the determination or application of firing data. Charts should be prepared and available, showing the leads in "target lengths" for these ranges and speeds.

Training should be progressive as well as thorough. Start with the individual gunner and gradually build up to the largest firing unit. The early training missions should be flown at low altitudes and speeds, and at short ranges. A gunner will nearly always obtain hits at the short ranges, and thus become confident of himself. Confidence plays no small rôle in aerial machine gunnery. The altitudes, speeds, and ranges should be gradually increased until the maximum desired shall have been attained. Each gunner should be given as many opportunities as our limited ammunition allowance will permit, to



fire alone, on a towed sleeve target. Only by carefully and intelligently supervised solo firing will he be able to accurately picture in his mind the correct position that a tracer must occupy with reference to the target. The exact position of the tracers must be noted and charted each time a gunner fires. When the target is dropped for inspection, the correctness of estimations and the accuracy of laying can be positively checked. A good machine gunner is one who has been trained to let his eyes deceive him, for the correctly placed tracer never seems to actually hit the target. After all, there is a certain picture that the tracer will present when correctly placed with reference to the target. This picture is deceptive in appearance, but once learned will never be forgotten. Thorough training and experience will finally produce a gunner who will correctly place his fire, more or less by instinct. When a low-flying plane launches its attack there is little time for mental gymnastics.

After the individual gunners have demonstrated proficiency in solo firing, they should be fired in pairs. The two machine guns should be sited at least 60 yards apart, for with the guns separated by this distance the desired crossing effect of the tracers will be readily discernible. It is of utmost importance that both gunners take the same lead. A check should always be made to be certain of this point, just prior to the opening of fire.

The point that it is better to take too much lead, rather than too little, should be stressed. It has been found that it is very easy to make changes in the lead, if the initial cone of fire be too far ahead of the target, but once behind it is very difficult to catch up. In team firing, it is highly important that both gunners open fire simultaneously, the initial shot from each gun be a tracer, and the rate of fire of each gun be as nearly alike as possible. These precautions may seem trivial but they often have considerable bearing on the results obtained. It will be found that no point is too small to be overlooked. Very little training is required to have the gunners open fire simultaneously. The proper spacing of the tracers may be assured by careful inspections of the ammunition belts. By counting the number of shots fired from each gun during any similar period of time, the differences in rates of fire can be determined, and one of the guns adjusted. Painted bullets should be used during solo firing for identification of hits, and the proper utilization of targets. In team

firing, if the bullets are painted, be certain that the color is the same for each gun. Team firing should be conducted as its name implies, and credit for hits obtained should be shared equally by the two gunners.

The training methods, employed in platoon firing, should be exactly the same as for the two-man team. Very good results may be obtained by manning the flank guns with the two most expert gunners of the platoon. These flank gunners should intersect their fire at the proper place with reference to the target; and the remaining gunners of the platoon should direct their fire at this intersection. It will be found that this intersection usually appears to be about one "target length" ahead of, and one above the target. As brought out above, it is preferable to have the cone of fire ahead of rather than behind the target, if for no other reason than that the pilot and vulnerable parts of the plane are usually located forward. Hits will usually be obtained whether or not the firing data are correct, once the gunners have firmly fixed in their mind's eye the proper picture of the cone of fire—target relation. When a number of machine guns are firing simultaneously on a target, the gunners sometimes become so confused by the large number of tracers that they lose sight of those from their own gun. Train the gunners to concentrate their attention on the last tracers visible, which are usually those in the neighborhood of the target.

There are three separate and distinct handicaps which must be considered and overcome whenever fire is controlled, either individually or centrally, by means of tracers. These are the curve of the trajectory due to the action of gravity upon the bullet, the illusory horizontal



curve caused by the gunner's eye being focussed upon a fast-moving target, and the inability of the gunner or observer to determine accurately at ranges greater than about 500 yards just when the tracer passes the target. It is obvious that, at ranges very far beyond the grouping point, the tracer does not pass through the target. Another handicap which cannot be overcome under target-practice conditions now in vogue is the appearance of the sleeve target now in general use. This target cannot, by any stretching of the imagination, be considered as even approximating an airplane in appearance. An airplane will, on nearly all presentations possible, actually have some depth and thus be of some aid to our stereoscopic vision. The sleeve target, even when coming directly toward the firing unit, presents very little depth, and there is no possible way of ascertaining whether or not hits are being obtained until it has been dropped to the ground.

When a tracer is observed from the machine gunner's position, or directly in rear of the gun, it appears to follow a straight line, insofar as the vertical plane is concerned. We know that this is not true, and that the trajectory curves downward in the vertical plane. The eye of the gunner, or observer directly behind the gun, will follow the tangent to the highest point along the trajectory. When sights are used as an aid to control, this downward curvature of the trajectory will be corrected for by the vertical lead, which takes into consideration both the vertical travel and superelevation. A gunner firing without a sight must make this superelevation correction by proper observation and placing of his tracers.

Excellent training, as to the amount of the superelevation correction, may be given to gunners by requiring them to adjust fire on a fixed target at a range of about 1,000 yards. They will then be able to see and be convinced that the tracer must appear to be passing above the target whenever hits are being made.

In sprinkling water with a hose, the nozzle is invariably held somewhere in the neighborhood of the waist line. The most likely reason for this is that with the nozzle held in this position, the eye can best judge whether or not the stream of water is being correctly placed. The human eye it seems, instinctively tries to surmount the visual obstruction which a curved stream of water presents, by an endeavor to look entirely over it; and if that be not possible it seeks the most advantageous tangent to the trajectory for observation. There have been, and still are, some machine gunners very expert at tracer control, who maintain that a machine gun should be fired from the waist and not from the shoulder. There must be considerable merit to this contention, especially in view of the analogy between tracer control and water sprinkling.

From personal observation, the conclusion has been drawn that the most difficult feature of tracer control is that of establishing and maintaining the correct superelevation lead. Many machine gunners seem to be of the opinion that the lateral lead is of the greater importance of the two. This opinion probably is based upon the fact that, not taking into account the angle of approach of the

target, the lateral lead is of the greater moment. It is believed that, if the superelevation lead be correctly placed with reference to the target, the lateral lead will take care of itself.

An observer on a raised platform, directly in rear of the guns, is in a very advantageous position for observation of the vertical curvature of the trajectory, and from this position can come nearer to looking over it than can a gunner. Smoke by day, and flash and smoke by night will often materially decrease the effectiveness of a machine gunner's observation.

Any officer, who was with antiaircraft artillery during the period just following the World War, can vividly recall the great difficulty experienced by searchlight operators in picking up targets. The reason for this was that operators at or close to the lights, were blinded by the glare. It was found that a person at some distance from the light was not blinded and could readily pick up and follow the target. As a result, distant control was decided upon, which greatly increased the effectiveness of the searchlight. It might be well to consider some form of distant control for antiaircraft machine guns. Possibly a gunner, stationed a short distance from the gun, might be better able to control and direct his fire. It is certain that an observer, stationed at some distance in rear of a firing unit, is in a much more advantageous position for observation than are the gunners on the firing line.

Just how far a gunner could be removed from his gun and still be able to effectively control it, is a matter of conjecture which can be determined only by actual test. The transmission of firing data from some central point, either through the medium of flexible cables or electrically, is one method of distant control, but this requires the presence of the gunner at or in near proximity to his gun. Perhaps in field conditions distant control would not be possible but we can never tell until we have tried it. It might be well to create a machine-gun test section, the sole function of which would be to try out every conceivable gadget or combination of gadgets, pertaining to the fire control and matériel problem, and keep them at it until satisfactory guns, mounts, sights, and fire-control methods shall have been evolved.

In any study of the machine-gunnery problem it will be found that the volume of fire is a factor of no small consequence. The fire power of any particular unit will depend upon the maximum rate at which the weapons can be safely operated, and the number firing. When the fire power of a single attack plane is taken into consideration, that of a machine-gun battery seems to be entirely inadequate. There are apparently no reasons why one gunner could not easily control two machine guns on a single mount, thus doubling the fire power of a unit without appreciably detracting from its mobility, and without requiring any increase to its personnel. The design of a double-barrelled machine gun does not seem to be beyond the realm of possibility. The main disadvantage of a twin mount would be the liability of having its two guns put out of action by a single hit.

It is not only likely, but practically certain, that there will be occasions where a machine-gun platoon, repelling an attack from low-flying aircraft, will have one of its guns out of action due to the danger of hitting the personnel of a gun crew directly in front of it. This hazard will always be present, regardless of the disposition of the guns of a platoon, or the number of guns on a mount. The greater the number of guns in action, the greater the probability of hitting and bringing down aircraft. The advantages of this type of mount seem to outweigh its disadvantages.

From actual tests, made as far back as 1926, the percentages of hits to be expected on a fixed target up to ranges of 1,000 yards, was determined. These percentages undoubtedly remain the same at the present time. With certain limitations, the percentage of hits to be expected on a sleeve target at the various ranges, has also been fairly well established. It is certain that any gunner, who can register hits on a sleeve target, can do as well, and probably better, when firing on an airplane. Unfortunately we have not as yet been able to try our marksmanship on airplanes. It is proper that we strive for the attainment of a certain percentage of hits in target practice as well as under service conditions, but after all, the number of hits that can actually be made on aircraft is of much greater importance. With the number of guns in a battery doubled, its chances for successfully coping with the enemy will be greatly enhanced.

Of all elements of firing data the most important is the time of flight. The advantages of shortening this are obvious. To decrease the time of flight, with the ballistic

properties of the bullet remaining unchanged, it would be necessary to increase the muzzle velocity. An increase in the muzzle velocity, especially if it be considerable, would cause greater wear on both the gun and barrel, especially on the latter, and would require a modification to the cooling system, which even now is unsatisfactory. The speed and maneuverability of aircraft are steadily increasing, making it mandatory that we meet these changes by a decrease in the time of flight of the bullet. The destruction of one plane would certainly justify the expenditure of a considerable number of machine-gun barrels, and even if necessary, machine guns. If possible, the time of flight should be reduced by one-half, which would be in keeping with the increasing airplane speeds. A shorter time of flight would simplify the machine-gun fire-control problem.

The final problem—the human element—is one which cannot be overlooked. We will assume that all matériel and gunnery problems shall have been solved, and that the personnel, in addition to being thoroughly trained and well equipped, meets all requirements as to physical qualifications. How many men, not protected by some sort of overhead cover, can be depended upon to unwaveringly man a machine gun in the face of the withering fire from the guns of low-flying attack planes, flying directly toward them, throttles wide open? This is a terrifying experience even with the machine guns not firing.

Theorizing and looking toward an ideal should be encouraged. There is always the chance that a thought will become lodged in a fertile mind, which will stimulate it to bring forth the ideal solution.

"AGAIN and again in the past our little Regular Army has rendered valuable services to the country, and it may at any time have to do so in the future. Its standard of efficiency and instruction is higher than ever in the past, but it is too small. There are not enough officers, and it is impossible to secure enough enlisted men. We should maintain in peace a fairly complete skeleton of a large Army. In principle, it is essential that we shall possess a number of extra officers trained in peace to perform eventually the duties urgently required upon the breaking out of a war."

"For years prior to the Spanish War the Secretaries of War were praised chiefly if they practiced economy; which economy was chiefly responsible for most of the mismanagement that occurred in the war itself—and parenthetically, be it observed that the very people who clamored for misdirected economy, in the first place, were foremost to denounce the mismanagement, loss, and suffering which were primarily due to this same misdirected economy and to the lack of appropriations it involved."

THEODORE ROOSEVELT.

NO MEDALS



By Gerald V. Stam

ON July 16, 1918, the 26th Infantry bivouacked in the Compiègne Wood after an all-night journey in rough-riding French *camions*. We of Company H slept until late in the day. When we awoke, we found that disaster had overtaken us—our chow-gun had been lost on the road. Some of us refused to believe this explanation and cursed the kitchen force feelingly for being lazy rascals. Eventually our cries were quieted by a handout from the other companies of the battalion.

Late in the afternoon we saw runner after runner scurrying through the wood and realized that something unusual was in the wind. A bit later one stopped at our position with word that all officers and acting platoon leaders report to the company commander at once.

We found Captain Worthley waiting for us under a large tree on the bank of a shallow ravine. My first glance at our capable twenty-five-year-old captain confirmed my suspicions; his body twitched nervously and his speech came in little jerks—mannerisms that invariably appeared when things were warming up.

Captain Worthley spoke bluntly; oratory was not one of his accomplishments. "The enemy has been repulsed on the Rheims front. Orders have been issued for a counter-attack on this face of the salient. Probably start tomorrow. Our division has been assigned a rough, strongly-held terrain. The main objective is about ten kilometers from the jump-off. Our battalion, supported by the 3d, has been designated as the assault force. The order states that all objectives must be taken."

He looked slowly around the group, catching each man's eye. "That's all I know officially. Remember this: keep your organizations in hand. Don't expect a subordinate to do something you would be afraid to do yourself. Return to your platoons, and see that every

man is properly equipped. We go in light packs."

I returned to the intelligence group, which was my particular charge, and repeated as much of the instructions as I thought necessary. They listened stolidly.

As a concession to conventionalism, I shaved; others did the same. There was a real reason, but no one had the poor taste to mention it.

That night we moved to a plateau overlooking a deserted village—Palesnes, I believe. In the morning we were issued extra bandoleers of ammunition and everybody promptly began grumbling about the added weight. At that time no one knew that our new division commander was an ammunition nut. Later we learned all about him and before it was over we knew we had a hard, exacting just commander. We came to be known as "Summerall's Ammunition Carriers."

The march up began shortly after dark. No one seemed inclined to talk; we trudged on in a silence broken by the monotonous shuffling of hobnailed shoes, the clank of equipment, the distant coughing of antiaircraft batteries, the occasional droning of planes flying far overhead, and commands to "Close up," or "Keep to the right." A few stars twinkled dully in the hazy atmosphere. I felt utterly alone. Every unfamiliar sound made my pulse quicken.

Eventually we turned onto a congested highway and from then on we disputed the right of way with tanks, trucks, ambulances, staff cars and motorcycles. Later on machine-gun carts and artillery caissons bored in and usurped what little of the road was left us. Part of the time we floundered along in the ditches.

About midnight a sudden and violent thunderstorm broke over us. Rain came down in solid sheets. Our soaked packs dragged at our shoulders. The footing be-

came treacherous and in the darkness more than a few had impromptu baths.

Somehow or other we slithered on, keeping our heads down to escape lacerated faces from the rifle muzzles in the ranks ahead and keeping closed up by hanging on to some part of the man in front. The drivers of the wheeled traffic cursed us with a proficiency acquired from long association with mules. Now and then some splattered Doughboy would reply in kind.

The storm ended as suddenly as it had started. A dirty gray crept up in the east and traffic began to thin out. We now saw pin-pricks of light flashing on the flanks and learned that this was the artillery going into position. Occasionally a shell roared toward us and burst with a red flash in the fields along the route. Whenever this happened the column seemed to shrink as if it were a single organism.

We plodded through a shell-wrecked village in a valley and then climbed a steep slope. There we turned off into hastily constructed trenches that paralleled the road. It still was so dark that visibility was limited to a hundred yards or so.

Wet and shivering, we huddled in the soggy trench. Never have I laid eyes on a sorrier or more woebegone collection of human beings. We seemed not soldiers but caricatures of soldiers. I saw no indication of the fictional do-or-die spirit nor any desire to fight. I think most of us just wanted to be left alone. To my mind it seemed unlikely that such muddy, sodden, scarecrows had enough stuff left to break up a quilting party, and right there I marked down the forthcoming assault as a complete washout.

Personally, I felt less warlike than my companions looked, if that was possible. It suddenly dawned on me that I didn't know the Kaiser, and that I had no personal grudge against any of his minions. I wistfully hoped the Germans would feel the same way.

Captain Worthley brought me back to reality by tapping me on the shoulder and stating quietly, "Sergeant, hurry out to the flank platoons and notify them that H hour is 4:35. Hurry. We haven't any time to spare."

With a sinking feeling in the pit of my stomach I set forth. I found the 1st Platoon about a hundred yards to the left and delivered the captain's



message. Here I was told that the shortest route to the other flank was across the front of the company. This seemed safe enough, so I started out, but in my excitement and haste to complete the job I lost my bearings. A sharp crackling sound, coupled with the sudden pelting of wheat against my face startled me. I had heard a machine gun before; no one had to tell me what this was. And then I remembered that I was alone and fifty yards in advance of the company.

My zigzag dash through that waist-high wheat would have done credit to Jesse Owens. There was no longer any sluggishness—either physically or

mentally. My heart hammered fiercely. I broke into a violent sweat.

I shot across the front of the group immediately under Captain Worthley. He stood up and yelled, "Come back, you damned fool! Never mind the other platoon."

A moment later I dived head first into the trench, almost at his feet. I got to my feet feeling shamefaced. I looked around and met blank, expressionless stares. No one spoke. Even the wise guys had lost their tongues.

A minute more and a skirling swooped down, ending in a jarring explosion. Wheat and dirt gushed up. More skirlings followed rapidly. Smoke and débris hung over the trench and a pungent odor filled our nostrils. Everybody developed a fondness for the mud in the trench bottom. The bombardment lasted perhaps five minutes.

No one had been hit. We stared idiotically at each other. Still no one spoke.

Then, with a tremendous roar, the entire rear blazed up, and a half-mile in front of us the earth erupted smoke, flame, and spouting funnels of dirt. The shelling settled down into a monotonous drumming that sounded like the simultaneous beating of hundreds of dishpans.

The first shell had hardly exploded before Captain Worthley was out of the trench and stalking into the wheat. He neither looked back nor spoke. Everywhere I saw dark figures plunging into the sea of grain.

Then the sun came out! Bright and warm, it popped up directly in front of us. Right and left, as far as I could see, wave after wave of men with glinting bayonets steadily tramped ahead through the shimmering yellow wheat. I felt heartened. The sun seemed an omen of good luck.



A chew is a great comfort in battle

Our wire lay about a hundred yards to the front, but before we reached it, a new note horned in on the din. A series of whistling shrieks darted down, and burst along the advanced lines.

My perspective abruptly narrowed to the personal when a shell hurtled down and flew apart in the midst of a clustered squad on my left. Only two emerged from the ballooning débris.

Something sailed directly at me, whirring peculiarly. I ducked—a futile gesture—and a piece of shell crashed against my left elbow, knocking me down. For a moment I laid there in a daze. Then it dawned on me that I still was mortal, so I got up and hurried forward to catch up with my group. My arm felt numb, but didn't pain me.

On the way up I saw the company clerk flat on his back, ashen-faced. He was beyond help. At the wire I caught up with my group. We negotiated the thin entanglement by climbing over it. When we were about fifty yards beyond the wire we heard a frantic voice yelling, "Wait! Wait! Wait for me!" I looked back and saw the pint-sized officer who commanded the 2d Platoon struggling fiercely to free himself from the wire. He still wore his yellow raincoat and sported a cane. Finally he broke loose, at the expense of the gaudy raincoat, and tore after us, flourishing his cane.

The poor lieutenant had not run twenty feet when a tremendous buzzing broke out, and he pitched to the ground. Toomey, his runner, ran back and bent over him. Again the buzzing, and Toomey slumped across his leader's body.

We never replaced Toomey. His ever-present good nature, his wit, his knack of mimicry, and his ability to radiate sunshine wherever he might be seems to be allotted to but one in a million.

The heat became stifling. Machine guns chattered constantly, filling the air with crackling noise like popping corn. Sweat poured off me in streams. The battle wasn't an hour old before I was wringing wet from the hips up; my rifle was slippery; and I panted like a wind-broken horse. I thought, "So this is war." And I thought of that line, "The pride, pomp and circumstance of glorious war," and then I remembered that Shakespeare was not talking of twentieth century war.

I chewed tobacco voraciously. At the start I had a six-inch cut. By the time we reached the second objective it was all gone. I believe I sprayed every foot of the ground I passed with tobacco juice. A chew is a great comfort in battle.

A shouting arose. Far ahead I saw tiny figures in scuttle-shaped helmets scampering up a long treeless slope and disappearing over the crest. Spurting dust pursued the fleeing shapes. Now and then one tumbled headlong and lay still.

One big fellow caught my eye. He was hot-footing it up the slope in long, earnest strides. I emptied my rifle at him, but without effect, for he passed out of sight, his heavy leather boots rising and falling like pistons.

Our machine-gun groups now raced into the front

waves, and opened up. At first we welcomed them, but we soon learned to steer shy of them because they always attracted heavy fire from the enemy.

A formidable looking straw stack loomed up straight ahead. About twenty of us pumped enough lead into it to have exterminated even the mice. We were preparing to attack it with the bayonet when a tall, gangling officer, grinning from ear to ear, strode up, and bellowed, "Get the hell away from here." He indicated the front wave with his thumb. "That's the place to do your shooting."

Somewhat embarrassed, I sought a shell hole to extract a plug of chewing from the pack of another occupant. Sergeant Weiss of Company F chanced upon us. He was a long-nosed roughneck. He grinned at us. "Come outa there, you dugout hounds, and let's git goin'." I accepted his hand, was pulled to the surface, and on we went.

We overtook the company as they were beating down on a partly hidden trench in the wheat. Fiction to the contrary, the men did not rush impetuously forward. Instead, the foremost wave walked ahead in an ever-changing irregular, serrated line, shooting as it advanced.

A tank waddled up from the rear, straddled the trench, and swept its entire length with a gale of lead. Airplanes, seemingly flocks of them, appeared and hovered low overhead, spraying the defense from all angles. The racket welled up into a throbbing, staccato roar. At length we surged in.

A half-dozen white-faced Germans rose before us and wailed "*Kameraden*." We hustled them to the rear—but not before the souvenir-minded had given them the works.

The trench was a sickening sight. The dead lay in clusters. Now and then some poor wounded soul laboriously crawled away from the dead, and begged for water. First aid was given the majority.

From then on we ran into little resistance until we hit the enemy's second line in a wide, marshy ravine, Missy, I think.

About five hundred yards from this point we struck a hog's-back ridge running athwart the advance and here our company halted to reorganize. While we were engaged in this the 3d Battalion passed us. A few minutes later a terrific uproar broke out. The defenders of the ravine let the assault have everything in their arsenal—machine guns, rifles and artillery. Dust whipped up along the advancing line from the whining tempest pouring out of the marsh. Men dropped fast.

We watched the assault battalion in comparative safety, and fervently hoped we wouldn't be requested to breast the deadly storm. We weren't—merely explicitly ordered forward.

On the way I saw several tanks stalled at the ravine's edge. Shells dropped all around them. Suddenly a door popped open and a couple of men scurried away.

We reached the ravine without much loss. But it was different the instant we descended the banks, and began threading our way across the morass, which was waist-deep in spots. A hurricane of rifle and machine-gun fire

churned the oozy water underfoot, and spattered us with slime. Occasionally shells swooped down, the bursts flinging up huge geysers of black ooze. The lucky got through by jumping from hummock to hummock.

On solid ground brush and tangled vines slowed us down still more, and the defense stubbornly contested every foot. The swamp was infested with concealed machine-gun nests, and the opposite bank seemed alive with them. All chattered incessantly. Several 77's coughed away steadily, nor were they silenced until their gunners were shot or bayoneted at their posts. The stifling swamp was a bloody, ruthless place of business. Few prisoners were taken in it.

At length we reached and climbed up the opposite, or eastern bank. There the advance halted, for the enemy, a few hundred yards away, had a clear field of fire from the Paris-Soissons highway. They literally swept everything off the plateau. We had outrun our artillery and we were in no condition to grapple with the enemy's countless

in the SOS, and foolishly refused to pocket my share. Subsequently I was astonished to learn that they brought from fifty francs up.

During the night an inconsiderate German bomber dropped one of his eggs a short distance up the valley and nearly scared us out of our wits. But aside from that the night was reasonably peaceful.



We discovered a veritable treasure trove—a box of Iron Crosses.



We began threading our way across the morass.

machine guns under such conditions. So we dug in and hoped the worst was over.

My detachment, the intelligence group, holed up on the side of the bank near the foot. There we peeped out occasionally at the innocent looking rippling wheat, and the rows of poplars marking the highway. German snipers discouraged anyone from taking a prolonged look.

Hunger got the best of us. All afternoon small groups wandered up and down the valley, searching discarded enemy packs for food. I went into a deserted village on our left, Saconin et Brieul, if the signs spoke correctly, and found some wine. This, plus some salvaged crumbly sausage and some darkhardtack that I found on a dead German, helped allay my hunger.

A little later we discovered a veritable treasure trove—a box of Iron Crosses! But sadly enough, I had no idea at this time of the fancy prices Iron Crosses were bringing

In the graying dawn we were routed out, and informed that the advance would be renewed. We formed section columns in the semi-darkness, and moved out into the dew-laden grain. An ominous quietness prevailed, but before we had gone a hundred yards it was shattered by a wailing that swooped out of the fog and materialized in a wall of spouting flame and dirt that paralleled the forward waves. Waspish fragments sang past us and acrid fumes made us cough. Magically, big black gaps appeared in the wheat.

A bit later the sinister staccato of scores of machine guns enhanced the din. It was plain that Fritz was in an ugly mood, and that there would be hell to pay.

We kept going. Major McCloud, the battalion commander, strolled quietly along the line, smoking a cigar and twirling his cane. He spoke cheerily to my group. "Looks like we're in for a hot time of it," he remarked. I don't think he ever finished his cigar.

In some unaccountable way Eberhardt had gotten in front of me. He had no business there; that was my place. However, I was not in the mood to insist on my prerogative. To tell the truth, a dozen could have usurped my position then without any hard feelings on my part.

The throbbing of the quick-firers increased with every step. A veritable gale seemed to lash the wheat. The various noises blended into one terrific roar that stupefied the senses.

Suddenly Eberhardt lurched and slumped to the ground. I thought he had tripped over something. I offered him my hand and shouted, "Come on, get up! We can't stay here." He didn't answer. His fingers

twitched violently. I looked closer and saw a bluish hole in the blouse over his heart. We moved on.

On and on we went. I moved like a man in a dream. It seemed impossible that the fire could increase. But increase it did, and with a suddenness that took my breath away. A regular blizzard of leaden sleet blanketed us. Men dropped like tenpins. We flung ourselves to the ground, and squeezed our faces in the dirt to get away from it. But that proved less endurable than the advance, for the crackling overhead and the spurting dust remained with us.

Everybody must have had the same idea at the same instant, for the line arose as one man and plunged ahead. Men fell fast, but we kept on going—blindly—instantively.

About seventy-five yards ahead we sighted the enemy in shallow trenches and fox-holes. My eyes fixed in horrible fascination on a machine-gun muzzle that seemed to center on my body. Behind it squatted a stolid-looking man in a coal-scuttle helmet and beside him crouched another man who seemed to be pointing me out. Suddenly, a strange calmness swept over me. I became obsessed with the notion that that gun must be put out of commission. Like a mechanical man, I raised my rifle deliberately, aimed carefully and squeezed the trigger. I repeated this operation several times. I distinctly recall that I was astonished at my own coolness.

The entire line was firing as fast as bolts could be worked. A man would fire, step forward a pace or two, then blaze away again. The gunner of the piece that was my particular concern suddenly slumped across the breech. Who hit him I do not know. Sometimes I wonder—

It looked to me as though our men were firing blindly. Danger certainly sharpened my wits, if not my judgment. I sought to correct this fault by waving and shouting, "Battle sight! Use battle sight! For Christ's sake, aim low!"

It was a futile waste of energy. No voice could have been heard in that infernal racket.

But my antics must have caught the eye of some alert Boche gunner, for all at once the air began to hum around me. A jolting jar whirled me around. I found myself facing the rear. Mystified, I wheeled to the front and attempted to resume fire. Splinters and the rusty barrel was all that remained of my rifle.

At that instant the entire line plunged forward, bayonets bristling. I went along. The enemy machine guns stuttered frenziedly. Bayonets flashed, and gun butts swept in arcs. It ended with ashen men in field gray trotting rearward with uplifted hands.

Officers were rushing here and there urging and shoving the mixed elements into some semblance of formation. A hand dropped on my shoulder, and a far-away voice said kindly, "Beat it to the dressing station, Sergeant. You're hit."

"Hit? Where? The hell you say!" I ejaculated in surprise.

"Your hand. It's covered with blood. Go now while the going is good."

I glanced at the member in question, and it was a bright crimson. I became a bit panicky and made tracks for a first-aid station. It is peculiar that I had felt no pain; in fact, didn't even know I had been hit. Excitement, I imagine.

I soon found a dressing station, that of the 28th Infantry, by the way, where I had my wound dressed. Several hours later, in company with other walking cases, I arrived at the divisional first-aid station. Eventually, by truck and rail, I landed in a French hospital in Caen, Normandy. And that, dear reader, was that.

* * *

What did I learn? Well, I learned a number of things; some about myself, some about soldiers in general.

As far as I was concerned I had answered one question that probably haunts every thinking man on the eve of his first battle—"Will I be afraid?" I was afraid—definitely and terribly afraid, but that fear decreased with action. I went forward and I did my share of the fighting. It was not a hero's share and I won no medals, but it was a share of which I had no need to be ashamed. I am convinced that most soldiers in their first battle feel and act the way I did.

I also learned a lesson that all fighting men soon learned—you can't judge the combat qualities of an outfit by its appearance. When I looked at my woebegone companions in the grey light of dawn I firmly believed that they had no fight in them—that they were at the end of their endurance. I was soon disabused on this count and I never made that mistake again. An outfit has reserves of energy that they themselves never suspect and that even the most experienced leaders often fail to realize.

Why did we attack the innocuous haystack so viciously? To my mind the reason is psychological. We were being shot at; our men were falling; and yet we saw no enemy. We could only walk forward blindly with the sound of death in our ears and the sight of death in our eyes. Under such conditions every instinct demands action, retaliation. To us the haystack was a symbol more than a danger. It was a target that we could pour our fire into and so we kidded ourselves into the belief that it held half the German Army and we let fly at it. When we had polished the stack off we felt a lot better and a lot more confident. Our leaders would do well to give this simple but deep-rooted need a little more thought—it is not too hard to satisfy it.

In this brief paper there is many another psychological index to the average soldier's battle reactions. These, the discerning officer will see and in the next war, as in the last, the officer who sees and acts will be a marked man not only to those whose lives he controls but to those who control his.

THE WILL OF THE LEADER

PART IV

By Major Richard G. Tindall, INFANTRY

When the French infantry quit trying to win the war by itself, it got better results

SEPTEMBER 4

AT 6:00 A.M., September 4, 1914, a rather shabbily dressed man with a noticeable paunch and a jagged white mustache stood stolidly before a wall map hung in a boys' school and listened to the animated discussion of a group of staff officers of the 3d Bureau (G-3) of French GQG. One glance at the map was enough: General Joffre saw that the situation for which he had been striving had now materialized. (See Map 1 which, however, shows situation of September 5.)

The German First Army, marching southeast, had not only left its right flank exposed to a blow from Paris, but seemed altogether unaware of its danger. It showed no indication of halting. Other German armies were pressing southward in a huge arc between Paris and Verdun. The French Sixth Army was ideally located to envelop the German right wing. The British were well placed to support the Sixth Army. The Fifth Army, which seemed to have escaped envelopment, might be able to meet the Germans frontally, as could the Fourth Army and Foch's Detachment. The Third Army was in position to strike the flank of the Germans pressing forward in the region of Verdun. There was no doubt about it (on the situation map the strategic situation looked excellent).

But Joffre was not solving a diagrammatic map problem; he was commanding armies of flesh-and-blood soldiers with human weaknesses. His Sixth Army was composed largely of reserve units—inferior troops that only a few days before had been defeated and dispersed. How much offensive power did that army now have? Would the British cooperate wholeheartedly? Could the Fifth Army, after being harried and hustled from the Oise to the Marne, still take it; or, more important, dish it out? Foch had reported that his Ninth Army was not yet fit to fight with hope of victory. The Fourth Army would probably face superior numbers and both its flanks would be exposed. The Third Army would have to fight facing in two directions and the weakened eastern armies would have to hold against the great German offensive being prepared in Lorraine. These, then, were some of the things that complicated Joffre's decision.

Meanwhile, the staff officers' discussion grew more and more animated. The opportunity had not only come—it had come somewhat sooner than expected. Could the Allies take advantage of it? Was it better to strike or

wait? As was his custom, Joffre listened and said nothing.

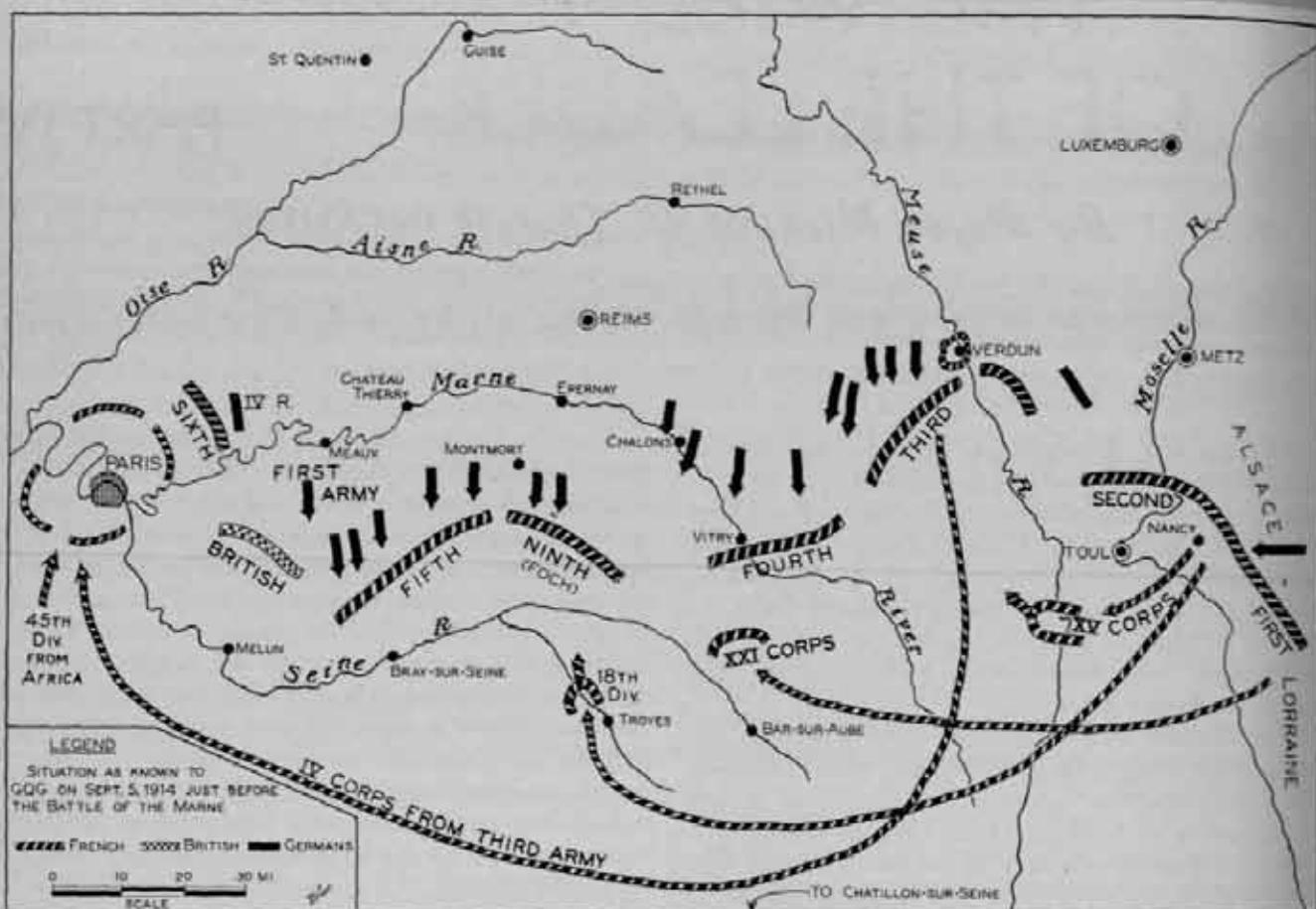
When he had heard enough he left the excited little group and walked to a neighboring office to talk over the situation with General Berthelot, sub-chief of staff, whose optimism during the retreat had been a tower of strength. Berthelot seldom saw difficulties, but this time he did. He felt the time was not ripe for an attack. The troops were in rather bad shape. The reinforcement of the Third, Fourth and Sixth Armies was not yet complete. It was still more or less touch-and-go with the Fifth Army. Therefore Berthelot urged delay; he wanted to let the Germans go farther into the net. Moreover, to Joffre's surprise, he still insisted on his old idea of a central attack instead of an envelopment—the main effort to be made to the northwest by the Fifth Army, reinforced, and by Foch's Detachment.

The leader of the opposition was Gamelin, chief of Joffre's personal staff. This officer, who had already displayed remarkable qualities, wanted to strike at once. The Germans might become aware of their danger and the opportunity might be lost. The XXI Corps and the XV Corps would fill the gaps on each side of the Fourth Army; they would arrive a little late, that was all. The IV Corps would arrive in time to reinforce the Sixth Army before the battle ended. The Fifth Army would fight; if any doubt existed on that count, ask its new commander, Franchet d'Esperey. The British seemed disposed to co-operate; why not order the attack now and get their approval afterward, if necessary? Joffre listened to Gamelin's arguments and, like the Tar Baby in the Uncle Remus story, "kep' on sayin' nuthin'."

Meanwhile important messages were going and coming. Early on this fateful day Joffre had received a letter from Sir John French, stating that he had received the recent instructions, that he understood them and the part the British were to play, and that Joffre could count upon his co-operation. The British commander thus indicated his willingness to take part in the forthcoming offensive.

Joffre answered this letter by another (dated 8:00 A.M. but probably drafted about 6:00 A.M.) in which he stated that his general plan was still the same, but that there was a change in the proposed action of the British forces. The change was contained in the following paragraph:

If the German armies continue the movement toward the south-southeast, which takes them away from the Seine and



Map 1—The retreat was over

Paris, perhaps you will agree with me that your action could most effectively be pronounced on the right bank of this river between the Seine and the Marne. Your left, resting on the Marne and supported by the Entrenched Camp of Paris, would be covered by the mobile troops of the capital's garrison, since they are to attack in an easterly direction along the left bank of the Marne.

The first sentence clearly indicated that the British should not fall back to the Seine but should prepare themselves to launch an early attack in the region south of the Marne. The second sentence, however, was bound to create confusion. If the Sixth Army was to attack to the east along the left (south) bank of the Marne, the British left could not be covered by this army, and at the same time rest on the Marne.

At 7:45 a.m. Huguet was directed by telegram to notify Sir John French that Lanrezac, his *bête noir*, had been relieved of command of the Fifth Army, and replaced by Franchet d'Esperey, who was liked by the British. To this telegram Joffre added in his own handwriting:

He has been ordered to enter into close and cordial relations with the Marshal. I expect much from this *entente*. Joffre's expectations appear to have been a bit premature, for a short while later a disappointing telegram came in from Huguet. Its very first sentence read,

The Field Marshal, who yesterday afternoon seemed very keen on moving to the east to relieve the left of the Fifth

Army, has changed his mind as result of cautious advice by his chief of staff.

The wire then went on to say that the British were being held in readiness to retreat at a moment's notice.

At 9:45 a.m. General Clérgerie, Gallièni's chief of staff, reported by telephone that the German First Army was still continuing its movement to the southeast, neglecting Paris and the Sixth Army. Gallièni had ordered early air reconnaissance and this was up-to-the-minute information. As a result, Gallièni proposed that the Sixth Army move eastward, prepared to attack, and that the British sideslip to the southeast. In another message Gallièni submitted two alternative propositions for the Sixth Army's action in the offensive. It could attack either on the north or south bank of the Marne. Gallièni preferred action on the north bank.² Now at this time the Sixth Army was on the northeast outskirts of Paris, facing northeast. If, as Joffre had directed, it were to participate in an attack in the direction of Meaux, in the next two or three days, it was essential that it execute its preliminary movements on the afternoon of September 4.

²The exact wording of this message is not known. However, it is known that Joffre's September 2d directive for the employment of the Sixth Army in the forthcoming offensive had stated that army would act in the direction of Meaux, which is on the Marne. The question of whether it would attack on the north or south bank had yet to be settled.

In his telegraphic reply to Gallièni, Joffre stated that he favored the south bank solution. After the war, he admitted that he was tempted to direct the Sixth Army to advance at once along the north bank but did not do so because of opposition from Berthelot. He also pointed out that early movement to the east by the Sixth Army might have revealed the forthcoming offensive. But in any case the Sixth Army could not have crossed to the south bank on September 4. Therefore, Joffre's answer did not preclude using this army on the north bank in the event the situation permitted a more rapid counter-offensive than thought possible at the moment. (It seems that at this time Joffre had settled on September 7 as the date of the attack. This, of course, would have considerable influence on the direction and location of the Sixth Army's effort.)

For some reason, Joffre's telegram to Gallièni, which was dispatched at noon, was not received until 2:50 P.M. And in the interim Gallièni again directed his chief of staff to put through a phone call to GQG. Clérgerie spoke to Colonel Pont, Joffre's G-3, and once more asked whether the Sixth Army should act on the north or south bank of the Marne. For the sake of secrecy the conversation was in veiled and guarded language. Colonel Pont replied that the Sixth Army should advance south of the Marne. Clérgerie pointed out that this meant an additional day's delay. Pont answered that this had been considered and that the delay would permit a strengthening of the Allied forces (presumably allowing completion of the movements of the IV, XV and XXI Corps). Clérgerie's first telephone call had been received with a sigh of relief at GQG. Prior to this call Joffre had been uneasy about Gallièni's attitude, for letters from that general had given rise to the fear that he might be committed to a purely passive defense of Paris. Clérgerie's phone call definitely dispelled that fear.

But Gallièni also had fears. He believed that Joffre had no idea of resuming the offensive until some vague, far-off date, whereas he considered an immediate attack to be the only solution. Nothing can better illustrate the difficulties of war than the fact that these two generals, although substantially in accord, entertained a lively distrust of each other's intentions.

Meanwhile, the discussion at GQG continued and Joffre's plans began to take definite form. Being a careful rather than a rapid thinker, he successively examined each element of his decision. He sent a liaison officer to Foch to learn his situation and to ask whether his army could engage in a decisive battle with prospects of success. With the same thought in mind he sent the following telegram to Franchet d'Esperey at 12:45 P.M.:

Circumstances are such that it may be to our advantage to deliver battle tomorrow or the day after against German First and Second Armies, with all the forces of the Fifth Army in conjunction with the British Army and the mobile elements of the Paris garrison. Please inform me whether you consider your army to be in condition to undertake this attack with chances of success.

GQG was also considering the question of how far to extend the offensive to the east. Encouraged by the dispatch of the messages to Foch and d'Esperey, which showed that Joffre had not accepted Berthelot's ideas, the Gamelin faction called for resumption of the attack on the whole front from Paris to Verdun. Berthelot, however, still insisted that the gaps between the center armies, the exhaustion of the troops, the exposed situation of the Fifth Army and the lack of a definite agreement with the British, required that the retreat continue a few days longer.

Joffre followed the discussion, weighing the factors but saying nothing. He then drew apart to estimate the situation and make the decision on which the fate of many nations depended. The day was sweltering hot. Captain Muller, his aide, describes how Joffre spent the entire afternoon in the shade of a weeping ash in front of GQG. Occasionally he would enter his office, straddle a straw-bottomed chair and study the maps on the wall. After a bit he would walk back to his chair under the ash tree. As he would put it, he was "ripening his decision."

The fat Berthelot, in his bedroom slippers, and the other perspiring officers of GQG went about their work with one eye figuratively fixed on the bulky figure of the Commander in Chief. All realized that a fateful decision impended. The moist, heavy air grew more and more oppressive.

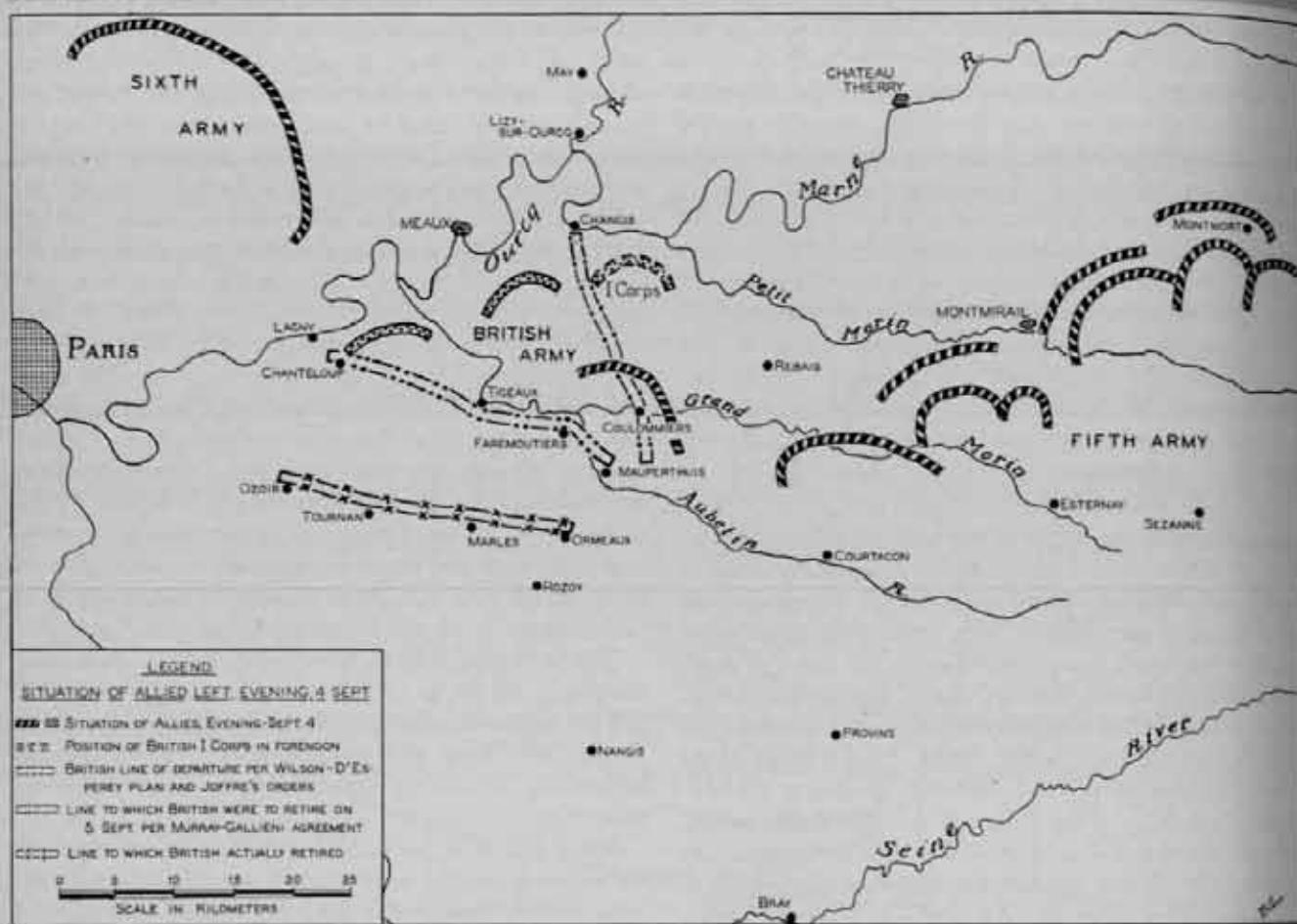
About 3:30 P.M. Joffre signed an order which modified the composition and zone of action of the Fourth Army, made Foch's Detachment the Ninth Army, and directed the Third Army, which was pivoting on Verdun, to keep on the enemy's flank, ready at any moment to assume the offensive to the northeast.

About 4:00 P.M. Joffre received a telegram from Huguet stating that Sir John French had promised Gallièni that he would remain in his present position as long as possible, prepared to coöperate with the armies on his flanks. This renewed indication that the British were willing to fight greatly encouraged Joffre. He was also informed, but erroneously, that Sir John French and Franchet d'Esperey were having an interview. Actually, General Wilson represented Sir John.

Information received during the day showed that German columns were crossing the Marne at and near Château-Thierry and that the German First Army was continuing its movement against the Fifth Army's flank. Under these circumstances, Franchet d'Esperey's reply to the inquiry as to whether his army could attack with chances of success became a more vital element than ever in Joffre's decision.

Just before dinner Joffre again asked Belin and Berthelot for their opinions. "Berthelot stood to his guns; Belin hesitated." Berthelot insisted upon his views even more strongly than previously because of the renewed threat of envelopment of the Fifth Army.

After weighing their arguments Joffre directed Gamelin to draft an order for an enveloping attack to be launched on September 7. This date was intended to meet some of



Map 2—The French armies would turn and attack

Berthelot's objections, give more time to arrange co-operation with the British, and conclude the troop movements in progress. Although this decision was merely tentative, it showed the way the wind was blowing. Everything now depended upon the answers of Foch, and particularly, of Franchet d'Esperey. If they said their troops could fight, the French armies would turn and attack. If they did not believe their men were in condition for a decisive battle, the retreat would be continued.

Word came in from Foch soon afterward—he would be prepared to attack on September 6. But how about Franchet d'Esperey? Would he dare attack with the battered, discouraged Fifth Army?

Joffre was dining with some foreign officers when Major Maurin,² one of his liaison officers, entered the room. Maurin was just back from Bray-sur-Seine and the word he had was important enough to justify the 60-miles-an-hour gait he had maintained over the congested roads from Bray to GQG. Franchet d'Esperey had directed Maurin to tell Joffre that Sir Henry Wilson, the British Deputy Chief of Staff, had agreed that the British would stand and fight, and that under these circumstances, the Fifth Army was prepared to attack on September 6!

Maurin's oral report to Joffre was shortly corroborated by a written message from d'Esperey. This message stated (See Map 2):

1. The battle cannot begin before the day after tomorrow, September 6.
2. Tomorrow, September 5, the Fifth Army will continue its withdrawal on the line Provins—Sézanne. The British Army will execute a change of direction facing east on the line Changis—Coulommiers and to the southward, provided its left flank is supported by the Sixth Army, which should reach the line of the Ourcq north of Lizy-sur-Ourcq tomorrow, September 5.
3. On September 6 the general direction of the British offensive would be Montmirail, that of the Sixth Army Château-Thierry, that of the Fifth Army Montmirail.

A complementary note added:

In order for the operation to succeed, it is necessary:

1. To be able to count upon the close and complete co-operation of the Sixth Army which must debouch on the left bank of the Ourcq, northeast of Meaux, on the morning of the 6th.

2. For the Sixth Army to reach the Ourcq tomorrow, September 5; otherwise the British Army will not march.

My army can fight on the 6th but its condition is not brilliant. There is nothing to be expected from the three reserve divisions.

²Recently French Minister of War.

It would be well if Foch's Detachment could vigorously participate in the action; direction Montmort.

This answer settled things. Joffre, in paying tribute to Franchet d'Esperey, who had been in command of the shaken Fifth Army for only twenty-four hours, says: "It is he who made the Battle of the Marne possible."

Joffre's decision was now virtually complete. Gamelin was ordered to modify the draft of his order to accord with the agreement between Franchet d'Esperey and Wilson. The Sixth Army would now attack *north* of the Marne.

About 8:00 P.M. Gallièni called on the phone and insisted on talking to Joffre in person. Joffre, who never liked to talk on the phone, took his chief of staff with him. Although no official record of the conversation was kept, the memoirs of Joffre and Gallièni and the account of Captain Muller permit a general reconstruction.

Gallièni had visited British headquarters during the afternoon and it appears that he reported the result of this visit to Joffre. He thought British coöperation in the attack was quite doubtful. He reported the situation of the Sixth Army, and then reopened the question of whether the Sixth Army should attack on the north or south bank of the Marne. He strongly favored an attack on September 6 and on the north bank.

Joffre assured him that the definite decision had been made for all left-wing armies to attack, that the British had agreed to participate, and that orders would provide for the Sixth Army to act north of the Marne. (This change was caused by Franchet d'Esperey's agreement with Wilson.)

Gallièni's telephone call resulted in one important change. September 7 had originally been set as the date of the attack and, according to Joffre, this was and remained his preference. However, he thought that it was now advisable to advance this date one day, because the Sixth Army's preliminary movement to the east on September 5 might bring about contact with the German corps left north of the Marne and thus warn the Germans of their danger. Moreover, both Foch and Franchet d'Esperey had accepted September 6 as the date of the attack.

Therefore, after the telephone conversation, Joffre changed the date in the attack order to read September 6.³

At 10:00 P.M. that night he signed General Instruction No. 6, prescribing an attack in which the Sixth, British, Fifth and Ninth Armies would take part.

The order did not include participation by the Third and Fourth Armies, although this had been decided upon. Complete information on which to base orders for these armies was lacking and therefore their instructions were deferred until the morrow.

Since the war some writers have sought to take the credit for the Marne maneuver away from Joffre and give it to Gallièni. They say Joffre's performance, in his sphere, was splendid but—he did not prepare the general French

³This change was the basis of rumors that the date of the order had been faked. Since the records contain the hour of dispatch of the order, the charge was easily disproved.

offensive; he did not make the decision to launch it; and he did not bear the responsibility for that decision.* As a matter of fact, recent publications, as well as the known character of the French commander in chief, leave little justification for the legend that Gallièni, by *coup de téléphones*, imposed his will upon a wavering Joffre and forced him to stand and fight.

Everything Gallièni did was within the scope of instructions from Joffre. He carried out these instructions with the greatest initiative. He was particularly alert in insuring continuity of reconnaissance missions early on September 4 (an unusual virtue in 1914), and he took prompt action on the information he obtained. But regardless of all this, the bald fact remains that Gallièni never had the knowledge of the situation as a whole which was necessary before any decision could be reached for the employment of all the French armies. The British General Spears sums the matter up when he says that Gallièni gives himself a rôle far inferior to that which he actually performed.

The view that is rather widely held in the French Army, and which seems to represent the facts, has been expressed by Captain Muller: "Gallièni saw and could only see Paris; General Joffre alone was able to see France."

The Gallièni phone call did not end GQG's eventful day. Joffre had just signed his now famous order when a liaison officer came in with disconcerting news. He had stopped at Sir John French's headquarters; there he had found that the British were not only undetermined—they were bewildered. And there was a reason. There had been two conferences about the proposed attack—one between Sir Henry Wilson and Franchet d'Esperey at Bray and the other between Gallièni and Sir Archibald Murray at Melun. The two conferences had reached different conclusions.

A few moments later a telegram from Huguet announced that Sir John French

by reason of the continual changes in the situation, preferred to study the question anew before deciding definitely upon what he would do.

So the whole matter of British participation in the battle was up in the air again. Could the Fifth and Sixth Armies attack without the British? GQG realized that Sir John might well be puzzled by conflicting proposals, but Huguet's message had an undertone that struck GQG as ominous. It was obvious that there was a misunderstanding—or worse.

A copy of General Instruction No. 6 was immediately telegraphed to Huguet and he was asked to transmit this order to Marshal French, inform him that it represented Joffre's decision, and ask his approval.

In addition to this, Captain de Galbert, a liaison officer, who was fully acquainted with Joffre's plans, was sent to Melun to explain to Sir John French the extreme importance which Joffre attached to British coöperation in

*To an American lady who in after years asked him who won the Battle of the Marne, Joffre laughingly replied, "I don't know who won the battle; I know who would have lost it, in case it had been lost."

the sense of the order. De Galbert left GQG about 11:00 P.M.

SEPTEMBER 5

Joffre's view of the situation on the morning of September 5 is expressed as follows in his memoirs:

The uncertainty which obtained in regard to the intentions of the British at this critical moment was altogether agonizing. I felt I must obtain the coöperation of their army at any price. If it was refused me, I saw the victory I anticipated slipping from my grasp.

So Joffre appealed to the French Minister of War to put diplomatic pressure upon Sir John French and call his attention to the importance of attacking wholeheartedly. He informed the minister that he had decided to throw every available French soldier into the battle.

While awaiting de Galbert's return, Joffre signed orders for the participation of the Third and Fourth Army in the impending battle. The Third Army would attack to the west. The Fourth Army would initially hold in place, but be prepared to resume the offensive later.

About 9:00 A.M. de Galbert returned with bad news. He reported that he had not seen Sir John French or any officer of his entourage, and had left the order with Huguet.⁵ Then Huguet sent word that the British had retreated again during the night, and that feeling toward the idea of an offensive was lukewarm at best. He believed that Joffre was the one man who could possibly change the attitude of Sir John French. Joffre decided to go see the British commander personally.

However, at 9:15 A.M. excellent news arrived. Huguet called up and said that the British had agreed to "conform to the intentions expressed" in Joffre's attack order, but "by reason of the withdrawal carried out last night," it would not be able to occupy "exactly" the position assigned, but would occupy a position a little to the rear of it.

This was a definite, clear-cut statement, but Joffre was taking no chances. He would go to Melun anyhow. The British might change their minds again, or they might demonstrate instead of attack. Forthwith, he had the following message sent to Huguet:

General Joffre is leaving for Melun where he will arrive about 2:00 P.M. He wishes to make a point of going personally to thank Marshal French for the decision he has taken.

Sir John French received Joffre in the salon of a château where he was quartered. Joffre stood with his back to a window, and faced Sir John French across a large wooden table. He began to speak at once—in French. Joffre was

never an orator but the gravity of the hour lent him an unusual eloquence. General Spears bears witness that this, coupled with his obvious sincerity, deeply moved his audience.

Joffre explained his plan and the great opportunity that was at hand and that might never come again. He was going to throw every French soldier into battle; the time for retreating was over. Those who could not advance must die where they stood.

He thanked Sir John French for his decision and said that history would have dealt severely with the British had their army been absent from the decisive battle. He said that success now depended upon a vigorous execution, and particularly upon the action of the British Army. He asked wholehearted coöperation, saying that the honor of England was at stake. He ended simply—"I beg this in the name of France."

To quote General Spears, an eyewitness:

We all looked at Sir John. He had understood and was under the stress of strong emotion. Tears stood in his eyes, welled over and rolled down his cheeks.

Sir John turned to an English officer and exclaimed, "Damn it, I can't explain. Tell him that all that men can do, our fellows will do."

So then they all took tea.

There can be little doubt that Joffre's visit to Melun was undertaken for a more serious purpose than a mere "thank you." Actually he went for two reasons: first, to make sure that the British commander would not change his mind again; and second, to instill vigor into the British execution. (See footnote at end of article.)

Captain Muller refers to this interview as "the keystone of victory" and insists that "for the first time the hearts of the two armies beat in unison."

That evening GQG settled down in a monastery at Châtillon-sur-Seine which four years later was to become familiar to hundreds of Americans. Joffre then began to draw up a stirring appeal to the French soldier:

At the moment of engaging in a battle upon which the fate of our nation depends, everyone must remember that the time for looking backward has passed; every effort must be devoted to attacking and driving back the enemy. Troops that can no longer advance must hold the conquered ground at any cost and die in their tracks rather than retreat. In the present circumstances, no weakness can be tolerated.

This order completed Joffre's preparation for the Battle of the Marne.

* * *

Liddell Hart in his *Reputations: Ten Years After*, said, "Joffre was not a general; he was a national nerve sedative." It was a clever phrase and it emphasized one of Joffre's important contributions to the Allied victory. Undoubtedly greatness of soul rather than greatness of mind was Joffre's outstanding characteristic as a war leader.

Unfortunately, Liddell Hart had previously portrayed Joffre as an incredibly stupid man who was merely the mouthpiece of an irresponsible staff. With all due deference to this well-known critic, it must be said, twenty years later, his verdict does not agree with that of the

⁵What de Galbert actually did at British GHQ is a mystery. Sir John French in his book 1914 says that Huguet, with a staff officer from Joffre, visited him during the night and gave him Joffre's proposals. Wilson says Huguet brought him Joffre's orders at 3:00 A.M. and that he saw Sir John at 7:00 A.M. and that "the latter has agreed to retrace his steps and join in the offensive." Huguet says Wilson took Joffre's orders to French at 3:00 A.M. Both Joffre and Captain Muller (Joffre's aide), say de Galbert returned to Bar-sur-Aube "without having been able to see Marshal French or his staff." The British *Official History* states that the officers at GHQ did not see de Galbert that night and suggests that Huguet did not let him see any British officer. De Galbert was later killed in action. Therefore it seems to be a clear case of "pay your money and take your choice."

French Army nor can it be reconciled with the facts, as we now know them. Joffre may not go down in history as a brilliant maneuvering strategist or tactician, but certainly during the period we have considered he was a general and a good one.

Joffre was by no means stupid. True, he was not inventive, but he knew how to utilize inventive men. He was open to suggestions, as all good generals should be, but he knew how to reject suggestions that did not fit in with his ideas. He could talk to the point when he had something to say. His words moved the British commander in chief to tears and stiffened the resolution of faltering French commanders. He was indisputably The Boss. The legend of a puppet, swayed by his staff, is just a legend.

Joffre had his faults and he made his errors. For instance, he must bear the major part of the responsibility for the French defeat in the Battle of the Frontiers. So, too, his directive of August 25, while correct in principle, could not be executed because there had been a miscalculation of time and space. Even the maneuver of the Marne was far from perfect.

But despite all this, few generals in history have achieved such an astounding reversal at the expense of such a capable and renowned adversary as the German Army of 1914. And to minimize Joffre's share in this reversal is to deny credit to the man who conceived the plan, set the stage, directed the actors, and bore the responsibility. Recent accounts leave no doubt of the importance of his rôle.⁶

Let us analyze Joffre's personal part in the achievement. First, with his world falling about him, he adopted a sound plan, probably the only plan that could have saved France. The guiding idea of building up the Allied left and of trading ground for time may not be considered a flash of Napoleonic genius, but it was clear thinking in a crisis. Incidentally, in adopting this plan, Joffre rejected the advice of his most trusted collaborator.

In contrast to his opponent, Joffre adhered to his guiding idea. And that guiding idea was to build up the Allied left to the point where it would be able to defeat the German right. On August 24 he began this task and despite all difficulties he carried it through. Let us examine the results of his tenacity.

In the Battle of the Frontiers, the German right wing, consisting of 30 infantry and 5 cavalry divisions, opposed 18 infantry and 5 cavalry divisions of the Allied left. At the Battle of the Marne, the Allied left wing had 35 infantry and 8 cavalry divisions with which to strike the 21 infantry and 5 cavalry divisions of the depleted German right. In two weeks the relative strengths had been almost exactly reversed! The credit for that reversal must go to Joffre, the blame to Moltke.

Unlike Moltke, Joffre supervised the execution of his orders, for he believed the "eye of the Boss" was a neces-

sary element in efficiency. His personal activity during the period considered is astounding. He was here, there, everywhere, seeing for himself. And what he could not see for himself, his hand-picked liaison officers saw for him. Consequently his decisions were rooted in reality. Moreover, he had been careful to surround himself with a staff that would "play ball" for him. Once he had made his decision his staff adopted it, regardless of their opinions or beliefs. From beginning to end he kept a strong grip on the reins and made his personal influence felt.

He cleaned out weak and inefficient generals. He even relieved brilliant commanders when he felt that they would not coöperate with their neighbors or subordinate their conceptions to those of GQG. The generals who remained were directed by a firm hand, were heedful of the situation of their neighbors and were imbued with the spirit of teamwork.

Moltke never seems to have given a thought to tactics, but Joffre did. In the midst of the battle he and GQG had the courage to lead the way in a tactical revolution. As a result, French tactics at the Marne were far superior to what they had been in the Battle of the Frontiers. At the Frontiers French units showed a universal tactical inferiority to the Germans, but at the Marne they demonstrated that they were capable of slugging with the German Army on virtually equal terms. True, they won no great tactical success, but, on the other hand, at only one point did they suffer a serious tactical reverse. The tactical improvement which permitted the strategic victory, lay in the points stressed by Joffre's note of August 24, particularly in better infantry-artillery teamwork. When the French infantry quit trying to win the war by itself, it got better results.

Joffre's task was singularly complicated by the fact that part of the forces of the decisive wing were not under his control. As Colonel Grasset points out, it must always be kept in mind that Joffre was waging a coalition war—the hardest kind. He could not order the British to do anything; he could only suggest, urge, beg. Moreover, the British commander in chief does not appear to have been very helpful in the Marne Campaign,⁷ and this did not lessen Joffre's difficulties. That something approaching teamwork and harmonious relations was established at the crisis of the campaign is a testimonial both to the tact and to the strength of character of the French commander. This is by no means his smallest contribution, for the British Army was essential to success.

It is true that German blunders gave Joffre his opportunity, but for many days before those blunders occurred, he had been preparing to meet just such a situation. Military history is one long series of mistakes; every battle situation is largely the product of errors. Therefore one highly important attribute of generalship is the ability to recognize the mistakes of an opponent, and take advan-

⁶Among the more important sources which have appeared in the last few years are the French Official History, Joffre's own memoirs, accounts by Captain Muller and Colonel Grasset, and Spears' *Liaison, 1914*.

⁷Prior to the opening of the campaign, Sir Douglas Haig, who first commanded the British I Corps and later all the British armies in France, wrote in his diary that Sir John French was unfit to command the British Expeditionary Force.

tage of them, as Wellington did at Salamanca and Joffre at the Marne.

In the field of tactics the Marne offers us a lesson of lasting value. In the future, as in the past, sound tactics must be based on the liaison of arms. Many new and highly efficient weapons have appeared since 1914, but the teamwork of weapons is as essential as ever. No one weapon is going to win the war by itself. The infantry could not do it in 1914 and the fast tank and bombing airplane will not be able to do it in 1940. Therefore let us adapt our procedure, as our weapons improve, without ever forgetting the old adage that in union there is strength.

However, it is in the field of leadership that the Marne Campaign is most striking. One leader through lack of will power let victory slip through his fingers. The other, undismayed by reverses, willed and fought another battle under more favorable conditions. The first leader refused to take hold; as a result his dislocated armies fought separate battles in divergent directions. The second leader kept control and was able to maneuver modern masses in accordance with his will.

The Germans were better trained and had the better original plan. But these advantages availed them little in face of the fact that Joffre had the will to command and Moltke did not. The decisive thing proved to be the char-

(This footnote refers to the situation that led up to Joffre's visit to British GHQ on September 5. See page 249.)

There was some justification for French skepticism. The attitude and performance of British GHQ from August 26 to September 1 was certainly not calculated to inspire much confidence. Sir Archibald Murray, the ever-cautious chief of staff, was a particular worry to the French. They believed that he was irrevocably committed to a no-fight policy, and thought that his influence might cause Sir John French to change his decision at a moment's notice.

The continued British retreat on the evening of September 4 left a highly unfavorable impression. To understand this, it is necessary to examine events at British GHQ on the afternoon and evening of that day.

Franchet d'Esperey had arranged to meet French at Bray-sur-Seine for a conference. For unexplained reasons French did not go in person, but sent his Deputy Chief of Staff, General Wilson.

Joffre's telegram asking whether the Fifth Army was in condition to fight reached d'Esperey at Bray. Thereupon, the French army commander told Wilson that he was going to answer "yes," and he insisted that the British, too, must join in the battle.

Wilson and d'Esperey then agreed on a tentative plan. On September 5 the British Army would face east, with its left on the Marne and its right south of Coulommiers. (See Map 2.) This meant, of course, that the French Sixth Army must attack *north* of the Marne. Wilson indicated that he might have some difficulty in getting Sir John French to agree to the plan.

Meanwhile, Gallièni had gone to Mélin, British headquarters, to arrange preliminary movements prior to the offensive. Sir John was absent so Gallièni dealt with Murray, who impressed him as being hostile to any attack at all. Gallièni waited several hours but French did not return. In the absence of his chief, Murray would make no definite pledge; nevertheless a tentative plan was evolved for an attack on September 7 with the Sixth Army acting *south* of the Marne and the British attacking south of the Sixth Army. This plan, which required the British to make room south of the Marne for the Sixth Army, read: (See Map 2)

Plan of coöperation between the British Army and the French Sixth Army, subject to the approval of Field Marshal French:

In conformity with the instructions of the French Commander in Chief, the French Sixth Army and the British Army decide to combine their efforts against the German army that has crossed the Marne.

For this purpose, during the day of 5 September, the Sixth Army will be put on the march toward the east in such fashion

acters of these two men.

"In war character outweighs intellect," say the German FSR. And they add that many stand forth on the field of battle who in peace would remain unnoticed.

It is not enough to conceive and order a maneuver; *it must be conducted throughout*. The problem the modern commander faces in the fast-moving division or army is no more difficult than that which Joffre solved in 1914 with 1914 facilities. We contemplate faster-moving operations today, but if those operations are to succeed our commanders must still take steps to make their personal influence felt and to keep track of their far-flung forces.

It is true that our tendency toward decentralization has been accentuated by the faster rhythm of modern war. The purpose of decentralization is to increase flexibility and mobility; never should it be allowed to degenerate into abdication of command or abandonment of control. Actually decentralization facilitates the commander's control over big things by relieving him from the necessity of regulating little things.

Although under modern conditions our units will often be far apart physically, they must be morally united and must operate and coöperate under the all-seeing "eye of the Boss." For even in this machine age the will of the leader remains one of the prime ingredients of successful warfare.

that in the evening the heads of its columns will be on the Marne between Lagny and Meaux.

The same day the British Army will change front so as to occupy the general line: Mauperthuis—Faremoutiers—Tigeaux—Chanteloup, in such a way as to leave the Sixth Army the room it needs.

September 6 the Sixth Army will cross the Marne, directing its course toward the east. The same day, the British Army will continue its movement and will pivot on its right wing, either the 6th or the 7th, its left joining the right of the Sixth Army. The two armies will then be ready to act in conjunction.

The line from which the British were to edge away on September 5 is behind the Grand Morin, generally facing north. At the time the memorandum was drawn up, the British were four or five miles north of this line.

Thus, two separate and widely differing plans had been made by British staff officers, without the knowledge of Sir John French. Joffre's faultily phrased letter of 8:00 A.M. added to the confusion. This letter spoke of the Sixth Army attacking on the left bank of the Marne in the same sentence in which it mentioned that the British left would rest on the Marne which, of course, was impossible.

The British Official History states that when Sir John French returned to his headquarters he found that two differing plans had been arranged, the Gallièni plan being more in accordance with Joffre's letter. This history also states that Sir John was much troubled, but that there seemed to be no doubt that Joffre wished the British to be withdrawn farther to make room for the Sixth Army south of the Marne, and that consequently Sir John decided "to retire a few miles further south."

It would seem that the sensible thing would have been to call GOG on the telephone and inquire as to which of the two solutions, if either, had Joffre's approval. A few moments on the telephone would have cleared up the enigma. But no one seems to have had this inspiration. It seems that Murray drew up the orders for the British retirement before Sir John returned, and it is not altogether certain that he did not issue them before Sir John got back.

A decision to withdraw "a few miles"—*to the line agreed upon by Gallièni and Murray*—could not be condemned, since the idea seemed to meet Joffre's approval. However, what the British actually did was to withdraw their rear guards some six or seven miles beyond the Murray-Gallièni line.

It was this extra, incomprehensible withdrawal which so alarmed the French. And in retrospect we can see that it was one of the chief factors that limited the success of the Allies in the Battle of the Marne.

THE FORTUNATE ISLANDS

By MAJOR BERNARD SMITH, C. E.

WITH the inauguration of the first President of the Philippines, a new milestone was passed in the remarkable history of those Fortunate Islands. Through force of circumstance, the Philippines are an outpost of the West, rather than a bastion of the East; islands of Christianity in a continent of paganism. From the West they were discovered; from the West they have been governed; and as "The Isles of the West" were they known until some sycophantic courtier called them "Philippine" in compliment to King Philip of Spain.

That they have had their taste of practical autonomy is attested by an enthusiastic tourist of the early 17th century who had this to say of them:

"All that lies between Cape Singapore and Japan is subject to Luzon. Their ships cross the ocean of China and to Mexico. They drive a magnificent trade; it is incredible what glory these islands confer upon Spain. The Governor of the Philippines treats with the Kings of Cambodia, Japan, and China. The first is his ally, the last is his friend, and the same with Japan. He declares war or peace without waiting for the command from distant Spain."

Only time will tell whether fortune or misfortune is the proper term for the granting of autonomy to the Philippines, but whatever may be the portion that fate has in store, they will have enjoyed almost 500 years of lucky breaks. No fair heroine of fiction, villain-pursued, has had more happy combinations of fortuitous circumstances operate in her favor than has our charming ward, Miss Filipina.

* * * *

The bearded Conquistadores brought Mexico and Peru under the sway of Spain while Charles I, who was also Charles V of the Holy Roman Empire, ruled the kingdom of Ferdinand and Isabella. His ambitions for European domination were vast. The dependencies of his relatively small Kingdom of Spain were of interest chiefly as a source of revenue to meet deficits incurred in other directions; troops serving the Emperor in Flanders and in Italy waited on the arrival of the galleons from America for their pay. That civilizations were being destroyed and that races were being enslaved to provide the gold and silver lading of those galleons concerned Charles very little, if at all.

The Philippines escaped being the terminus of one more tentacle sucking blood-stained treasure into the bottomless coffers of this Charles, who styled himself "Plus Ultra," by the entirely accidental circumstance that his Captain got himself killed in the year 1521 while aiding the Sultan of Cebu. Magellan's life was sacrificed rather as a matter of social amenity; he took the Sultan's side in a sort of joust—a two-penny-half-penny war with the neighboring island of Mactan.

* * * *

Fortunate it was that the Philippines were conquered under the aegis of Philip II. When the vast domains of Charles V were divided, the crown of the Holy Roman Empire and the Austrian lands went to his brother Ferdinand, while the portion of his son, Philip, was the Netherlands, the Italian provinces, and the Kingdom of Spain and its dependencies. Philip was a Spaniard in language and in feeling. He was extremely pious and very proud of his title of Most Catholic Sovereign; to him the saving of souls was far more important than the extending of his dominions.

By the time that Philip ascended the throne of Spain, the Council of the Indies, established by his father, had systematized and codified the procedure of conquest and colonization. Philip found ready at hand the machinery by which he could prevent a repetition of the excesses of the Conquistadores in Mexico and Peru. He was zealous for the conversion of the heathen; and not so deeply involved in general European politics as his father had been; these circumstances, coupled with an infinite capacity for work, made possible the close supervision of the conquest and the colonization of the Philippines. How close that supervision was is evidenced by the notations, in his own hand in the margins of the original documents, of Philip's comments and desires with respect to the reports submitted to him by the Adelantado Legazpi.

Where Mexico had been conquered by an adventurer whose sole motive was to fill an empty purse, and Peru by a former swine-herd in similar circumstances, the conquest of the Philippines was accomplished by a lawyer, assisted by a soldier-navigator turned priest. As a consequence, it was not the fate of the natives of these truly Fortunate Islands to be hunted to death by man-killing mastiffs, as were the Peruvians of thirty years before.

* * * *

The Philippines were conquered by a priest and a lawyer. That they were conquered at all was due to the circumstance that the Audiencia, the Executive Council in temporary control of the government of Mexico, resorted to trickery when logic failed to carry its point.

When the New World was divided—more to fix responsibility for the conversion of the natives thereof than to regulate the aggrandizement of Portugal and of Spain—the line of demarcation was established in the Western Hemisphere at three hundred and seventy leagues west of the Cape Verde Islands. To the east of that line was the sphere of Portugal, and to the west that of Spain. To locate this meridian in the Western Hemisphere had been relatively simple, but to produce it through the Poles and thus to determine where it lay in the Eastern Hemisphere presented a much more difficult problem. Whether the line of demarcation passed to the west or to the east of the Philippines had not been defi-

nitely settled as late as 1564, or so the Audiencia of Mexico professed to believe.

King Philip conceived it to be his duty to accomplish the conversion of all the natives within his sphere as rapidly as possible, regardless of whether or not valuable lands were discovered in the process, and an expedition was prepared on the west coast of Mexico for this purpose. The King had not majored in geography; when he directed that the Cross be carried to the islands of the west, he mentioned as examples the Philippines. The lawyer Legazpi and the Friar Urdaneta, whom he had designated to lead the expedition, well knew that those islands were not within the allotted Spanish sphere. Hence they proposed to sail to New Guinea, that island which looks so much like a Guinea hen, where, as the Audiencia equally well knew, the prospects were far more for spiritual than for commercial profit. The Viceroy of Mexico, who was giving effect to the King's instructions and whose decision would be final, shared the view of Legazpi and Urdaneta. The expedition was almost ready to sail when the Viceroy died.

The government of Mexico thus passed into the hands of the Audiencia, and the Audiencia was composed of practical men. Their position was that the King's mention of the Philippines was conclusive; Urdaneta, who was a skilled pilot and had made a voyage to the Philippines, stated that of his own knowledge the islands were properly Portuguese, and argued that surely it was not the purpose of the King to violate the territory of Portugal incident to the work of conversion. Since Legazpi and Urdaneta were not to be convinced, the Audiencia finally cut the Gordian Knot by ordering the expedition to set sail for New Guinea and not to open the sealed orders until they were 300 leagues at sea.

Three hundred leagues out on the broad Pacific the little fleet hove to, and the orders were read. It was directed that they proceed to the Philippines and there search for possible survivors of an expedition that had sailed from Mexico twenty-five years before. Sadly they turned the prows westward; pilots, captains and priests felt that they had been tricked; but having come so far they must go on. And thus it was, through roguery, that the Philippines became Spanish, and barely in time to prevent their becoming Chinese.

* * * *

The compulsion of famine caused the Spaniards to move north from Cebu and Panay, the islands of their original settlement; attracted by the beauty of Manila Bay, they took the little town of May-nilad and the island of Luzon from the native Rajahs. They had been in possession barely three years when the Chinese corsair, Limahong, decided to accomplish his long-deferred conquest of the Philippines. In his lair on the China coast, Limahong could have organized his expedition of sixty-two war junks—he was transferring his base, complete, to Manila Bay—as easily in 1570 as he did in 1574, but he considered the Philippines as a harvest awaiting his reaping.

The garrison of Manila was pitifully small, and so con-

temptable did the Chinese consider the force that the Spaniards could oppose to them that the use of fire grenades—a terrifying feature of their tactics in sea battles—was forbidden. Limahong considered Manila already his; he did not propose to have it burned. As a prelude to their attack with the axe and spear—the weapons that Harold the Saxon had used in opposing the Norman invasion of England 600 years before—the Chinese fired a volley from the bronze cannon with which their junks were armed. But the cannon were not shotted—the Chinese placed more reliance on the terrifying effects of the sound than on their marksmanship.

In a hundred fights the Chinese phalanx had been victorious; in a hundred fights the enemy had broken and fled before the serried ranks of the spearmen, or had stood only to have their skulls split by the axemen who followed close behind. And such was the skill of the Chinese with the throwing axe that they could split a coconut at fifteen yards. At Manila, their charging phalanx met for the first time the arquebus, and in the hands of cuirassed and helmetted men who had met and defeated the best troops that Europe could afford. But despite the hail of bullets which met them, before their charge could be stopped the Chinese had forced the palisade of the Royal Fort of Santiago and made a lodgement within the citadel of Manila. There the tide of battle turned. The columns which followed the storm troops found their way littered with the bodies of the fallen; the steady, ominous rattle of the arquebuses within the fort presaged a quick end to those who had forced their way in and the remaining pirates lost heart. The attack failed.

Notwithstanding their defeat by the Spaniards, there can be no doubt of the ability of the Chinese to have overcome the resistance of the native Rajahs because of the superiority of their weapons and their long practice in the art of war. Had the Spaniards found the Chinese in possession of Manila on their arrival, it is unlikely that they would have risked the losses that an effort to dislodge them would have entailed. The little Spanish colony, thus restricted to the famine ridden islands of Cebu and Panay, harried from the north by the Chinese and from the south by the Moros, would have abandoned the Islands either through discouragement or the weight of their adversaries' numbers. For every soldier that Legazpi could bring from Mexico, Limahong could bring a hundred from China, and the result could not have been long in doubt.

But Limahong arrived too late, and so the Philippines remained Spanish.

* * * *

Almost eighty years passed before the fate of the Philippines was again at hazard, but in the interval there had been enough misfortune to more than offset the advantage of that respite. Revolts of the Chinese, an earthquake which all but completely razed Manila, and countless sea battles with the Dutch from the Spice Islands to the south—a repercussion of the war in Europe between Spain and

the United Provinces—had been a constant strain on the resources of the islands, both in men and in treasure.

The year 1647 found the Philippine treasury impoverished. Repairs to war vessels were being delayed; all the military units were dangerously below strength; vital elements of the defense were being neglected—and all for want of money. The Dutch chose this time for a descent in force on the Philippines.

On the afternoon of the Feast of Pentecost, Sunday, the ninth of June 1647, arrived the Admiral Martin van Gertzen, commissioned by the Dutch East India Company to break down the sales resistance and any other kind that the Spaniards might have the temerity to offer, and to take possession of the Philippines. The corregidor on Mariveles Island at the entrance to Manila Bay—the island is now our fortress of Corregidor—barely had time to light the beacon that warned Manila of impending danger, and to flee to the mainland before the Dutch landed.

Martin van Gertzen and his thousand merry men—sea beggars, English, Portuguese, French, any and all who would take risks for the pay and the prospects of loot that service with the East India Company offered—arrived in thirteen vessels—not a lucky number. There were twelve ships of war, mounting among them over three hundred guns, and a scout or despatch boat called a *champan*. Three of the war vessels stood guard at the entrance to the Bay—for incident to the capture of Manila they planned to seize the Acapulco galleon which was due in Manila any day and would bring a million pesos in gold and silver from Mexico for use in the China trade; the rest of the fleet took its stately way toward the city.

Van Gertzen's hearties were in no mood to go to work on Sunday afternoon—more especially when there was the Feast of Pentecost to be celebrated. Because his men were the sort they were and he could not compel them, or else because he anticipated no difficulty in the task before him, Van Gertzen failed to deliver an attack on the day of his arrival; instead, the fleet sailed up to the head of Manila Bay to celebrate the Feast of the Pentecost in the Pampanga. The three-day debauch which followed was most decidedly not to be compared with the sanctimonious celebration of a religious festival, for their Captain's commission was the only thing that differentiated these men from pirates.

The Spaniards took full advantage of the respite thus granted. Cavite, the Port of Manila—then, as now, an important naval station—was prepared for defense. Work on the war vessels under repair was rushed; working parties toiled night and day in the erection of new palisades, and new gun-platforms with breastworks of gabions. Additional sentinels and guards were stationed along the shore and in the open country to give timely warning of any attempted landing of the enemy. A patrol of horsemen from the neighboring ranches was formed so that a force would be available to go rapidly to the threatened point and oppose a landing.

The defenses had been materially strengthened before the attack finally was delivered. In a hard fought battle

that lasted all day, the Dutch fleet was badly damaged and driven off. As a partial satisfaction for their defeat, the Dutch burned the corregidor's house on Mariveles Island and then limped back to their base at Batavia.

Thus it was, by the narrow margin of a three-day debauch, that Manila remained Manila, and is not now New Utrecht.

* * * *

Three hundred years ago the Dragon which is China, having swallowed, but not completely assimilated, an invasion of Tartars, undertook too soon to swallow an army of Manchus. But instead the Manchus turned the tables and ate the Dragon; a very unexpected denouement. This upset had many consequences; from chagrin, the last of the Ming Emperors drowned himself in the Yangtse Kiang; the shaved head with the pigtail was the only kind of head a Chinese was permitted to keep on his shoulders; and the Philippines were brought into the most dire peril they had faced or were to face in their nerve-racking history.

Foremost among the malcontents under the Manchu régime was the Admiral or the pirate—depending on the side from which you view him—Cheng-che-tung. The gift of a Manchu princess and other valuable considerations had brought him for a time to recognize the excellence of the Manchu government, but domesticity soon palled and the redoubtable Cheng returned to his unreconstructed way. There is a Chinese saying which as old as China itself, and still valid: "A successful bandit is a General, and an unsuccessful General is a bandit." The Manchus, having read the classics, made Cheng a General of the Empire. After that it was necessary only to give him an assignment in Pekin—the glamours of which he could not long resist—and then to imprison him on any flimsy pretext or none. The General Cheng died in prison.

His son, Ko-xinga, was only twenty-five years of age at the death of his distinguished sire but he was fully competent to carry through the task he had inherited. He succeeded to the command of Cheng's army and fleet, which was without peer in all Asia. The organization of the army he raised to such a degree of perfection that tens of thousands of men were drilled simultaneously with an ease and precision that astounded European observers.

As the first step in avenging his father and in reclaiming China for the Mings, or perhaps for himself, Ko-xinga invested Nanking. For some reason, very difficult to understand, the siege was not strongly pressed; before the garrison could be forced to capitulate, the Manchus brought out of the inexhaustible north almost half a million Tartar horsemen. The army of Ko-xinga, composed of heavily armed infantry, was utterly unable to cope with the mosquito-like Tartars on their wiry little ponies. The Chinese raised the siege and withdrew to the coast.

Ko-xinga having returned to his base at Amoy, the Manchus were resolved to leave nothing undone to prevent his return. The method of defense they adopted was without parallel in history until the German withdrawal from the Somme during the World War. The coast of the

Empire was depopulated for a depth of six leagues—about a day's march for a foot soldier—and the land within that zone was laid waste. The cities were burned and the earth was swept clear of all food for man or beast. The smoke of the burning crops and cities hung over the land for days, so that from the sea the coast seemed enveloped in a dense black cloud. No stone was left upon another; wells were destroyed and every vestige of human habitation removed. Then it was decreed that no one but soldiers might enter this zone on pain of death. Watch towers were built along the edge of the zone, a league apart, and signals were devised so that on the approach of the dreaded Ko-xinga, troops could quickly be assembled at the threatened point.

This rather discouraging aspect of the mainland turned the thoughts of Ko-xinga toward the sea. He decided to establish an island Empire. Opposite Amoy was Formosa. The Dutch made a stubborn defense but Ko-xinga landed 100,000 men and a hundred siege guns, and after a ten-months' siege the Dutch capitulated. While still besieging the Dutch, Ko-xinga was prudently looking further afield; he sent envoys to the Philippines to demand tribute, not in lieu of conquest but to make the archipelago productive while he was dealing with Formosa.

Meanwhile, the lesson of the events transpiring on the island to the north was not lost upon the Spaniards. As a security measure, the Governor planned to deport the domiciled Chinese who were far in excess of the number authorized by Royal regulations; naturally they would become a source of danger in case of attack by their compatriots. Confusion was inseparable from this attempt to reduce so drastically the number of Chinese, and the more impecunious Spaniards took advantage of the resultant disorder to loot the Parian, or Chinese, quarter of Manila. The terror-driven Chinese consequently attempted to seize vessels in which to escape from what they conceived to be imminent death, and in the ensuing riot thousands were killed. When a semblance of order had been restored, the number of Chinese who could safely be retained for work on the walls and in the galleys was estimated and all others were ordered deported. But even when the available vessels were so crowded that the sailors had to walk on the heads and shoulders of the passengers, it was found that there was still a balance unprovided for. This unfortunate residue was marched to the beach by tens and there beheaded.

The few Chinese who had been able to seize means for their own transportation sailed to Formosa and there related to Ko-xinga what had happened. At about the same time the envoys returned, reporting that tribute had been refused. This double affront to his dignity Ko-xinga was in no mood to bear, and his preparations for the extermination of the Spaniards were pushed to completion without ceasing day or night. From the mountains of southern Formosa the island of Luzon in the Philippines can be seen on a clear day; the task that Ko-xinga had set himself would not take long.

The preparations for the conquest were rapidly nearing

completion when Ko-xinga received news that his son had committed the unpardonable crime. This son of Ko-xinga's had long been a thorn in his father's flesh. The son of the man who considered himself the potential conqueror of Asia was a bookworm—a pale-faced student who found his enjoyment in the quiet of the library rather than in the blood and tumult of the battle. But being Ko-xinga's son, he must needs be Ko-xinga's viceroy in China, and under his lax control the invincible armies which Ko-xinga left behind had become flabby and impotent. In a battle with the Manchus, in which they were not greatly outnumbered, the Chinese force had been out-maneuvered and decisively defeated.

The rage of Ko-xinga when he heard this news passed all bounds. Added to the insults which the Spaniards had so recently heaped upon him, it was unbearable. The super-rage culminated in a seizure from which he never recovered. He died within three days, in the thirty-ninth year of his age. His last instructions to his trusted lieutenants were to have his son beheaded and the Spaniards exterminated. But these orders were never to be carried out—when the King is dead, he is dead. None of his lieutenants possessed the energy and genius necessary to hold together the vast organization that Ko-xinga had built up, and to direct it along its path of conquest.

And so the Philippines were saved from a terrible fate by the untimely death, at the height of his power, of a man to whom their conquest would have presented no difficulties, and who had set before himself the problem of their punishment as a task demanded by his honor.

* * * *

Thus, with the passing of Ko-xinga, there passed the threat of Eastern domination of the Isles of the West. They were henceforth to be enmeshed in the tangled skein of European diplomacy but in a fortuitous, unconsidered way. It is an odd coincidence that in 1932 the son of a Governor of New York ruled the Philippines; while in 1762, a son-in-law of the Governor of New York was considering ways and means of adding the Philippines to the large and growing collection of colonies that the Great Commoner, William Pitt, was making for the English crown. While touring the Orient on sick leave in 1759, Colonel Draper, who oddly enough commanded His Majesty's 79th Foot, was very favorably impressed by the deplorable condition of the defenses of Manila as he found them at that time. Spain and England were at peace, but the Colonel, well knowing that nothing is more constant than change, made a most enthusiastic report as to the availability of the Philippines for collection. Then he returned to his more immediate task of assisting in the conquest of Canada from the French, in the course of which he became General Draper. He married the daughter of the Governor of New York.

The European caldron continued to seethe and bubble; in the course of one of the numerous combinations and permutations, the King of Spain had the poor judgment to sign what was called the "Family Compact"—a thing

having nothing whatever to do with cosmetics—with his nephew, the King of France.

Post-haste, General Draper hurried over to London; from there he was hurried on to India. But these were not the days of transcontinental and transoceanic flights; hurrying was done much more deliberately. The *casus belli* which was to add—temporarily—the Philippines to the list of British dependencies, was the "Family Compact"—already referred to—which was signed at Versailles on August 25, 1761. But to allow time for completing the preparations on the far side of the world, the declaration of war was delayed until January 2, 1762.

The British found no difficulty about the conquest of Manila.* With surprising ease the city was taken by assault and the Archbishop, who was also Governor, with the other dignitaries, retired to the Royal Fort of Santiago and there signed articles of capitulation ceding the archipelago to Great Britain and agreeing to the payment of a four-million-dollar indemnity. It was never paid.

But while this was going on the British domestic caldron had done some seething on its own account. Pitt was dismissed. His successor made peace as rapidly as possible and without regard to expense. Both Havana and Manila were returned to Spain by ministers who were said neither to know nor to care whether Manila was in Cuba and Havana in the Philippines, or vice versa.

As living reminders of this strange interlude, in the village of Taytay, near Manila, are to be seen tall, bearded men, totally unlike the native Filipinos. These are the descendants of Sikh soldiers who deserted and remained behind when the British expedition withdrew to India. As far as a soldier may be said to have a home, General Draper's home for a long period was in South Carolina, and this American contact may account for his apparent addiction to souvenirs. At any rate, he collected and sent to his alma mater, King's College, Cambridge, the Royal Standard and flag of Legazpi, which had hung over the Conquistadore's tomb in the Church of the Augustinians in Manila for two hundred years.

But the Philippines remained Spanish.

* * * *

And still the caldron that is Europe seethed, but this time (1897) with indignation. The old, long established Spanish monarchy was being affronted by the upstart American Republic. The time had come, it seemed, for all good legitimists to band together and crush this threat to the monarchial principle. After conference it was decided that Austria should take the lead, because Spain had been Hapsburg before it became Bourbon, and Aus-

tria would be harder to get at if the Americans became too resentful. But Austria declined the doubtful honor. When the *Maine* was blown up in Havana harbor and war was seen to be inevitable, the Spanish Government asked if Germany would take the lead in a demonstration in behalf of the monarchical principle against American republican encroachment. Germany was interested, but not in leading; it was pointed out that if Germany led, France would not follow, but that if France would lead, Germany would lend enthusiastic support. But no one could be brought to agree to bell the cat.

Meanwhile, Prince Henry of Prussia, who was commanding the German Asiatic squadron, cabled from Hong Kong that a German merchant from Manila had stated in a way most worthy of credence that a rebellion had justified itself in the Philippines, and that the natives would gladly place themselves under the protection of a foreign power, preferably Germany. This was later confirmed by the German Consul General in Manila, who reported that the insurgents did not think themselves capable of establishing a republic, and inclined to the belief that they would be best off as a kingdom. Indications were, he said, that the matter would probably culminate in the offer of the throne to a German prince.

But the status of the Philippines was settled by a most remarkable and unexpected change in American public opinion. A year or less before Admiral Dewey sank the Spanish fleet in Manila Bay, and thus in effect gained possession of the islands, it seemed that the United States wanted no colonies, no European neighbors, no alliances, no Army, and very little Navy. The declaration of war with Spain brought about a complete change. Where European nations had assumed that there would be no participation by the United States in the division of the Spanish colonial possessions, except perhaps a protectorate for Cuba and the possible annexation of Puerto Rico, they found instead that the Philippines and Guam had been annexed in addition. The dream of a German prince on a Philippine throne vanished like smoke.

But possibly the pendulum may be swinging back again. There is an old established practice of "compensating" recalcitrants who refuse, otherwise, to play in the concert of powers; the compensation is always at the expense of those unable to object to it. Perhaps a German prince on a Philippine throne is not an entirely fantastic conception. It is not impossible that a military rule be imposed by a virile power more nearly at hand. Will "Time," the inimitable architect, change the design of the fairy palace pictured to the credulous gaze of the tao and substitute therefor the less pretentious edifice of a subject people? How much longer the Philippines may be known as "The Fortunate Islands" must be left to conjecture.

*The British capture of Manila, 1762. November-December, 1935, issue of the JOURNAL.

THE MISUSE OF AIR POWER

By Dallas D. Irvine

RADICAL innovations in the art of war are almost invariably the product of desperation, for it seems that nothing else can tear the military profession from its habitual slumbering in the voluptuous embrace of ways that are old and familiar. Sometimes the desperation is more purely military, being inspired by the terrible anger of a nation against a trusted profession which has been demonstrating itself, monotonously, to be incapable of obtaining reasonable results with given resources. At other times the desperation is national, being the result of a predicament in which a nation's ordinary resources for war cannot furnish adequate insurance against early defeat. In either case extraordinary expedients are likely to be conceived and adopted. Since desperation is not very conducive to wisdom, however, a majority of these expedients are likely to be very ill-advised even if some may prove to be really revolutionary.

One of the reasons why modern Germany has been fertile in military innovations has been the desperate predicament in which she is placed geographically, being virtually encircled by other great nations a majority of which are either chronically hostile or possessed of inimical interests that make their friendship unreliable. Not all of the innovations to which Germany has had to resort in order to offset this encirclement have worked out to her credit, whether one judges on moral grounds or on the basis of effectiveness in the exercise of intelligence. The invasion of Belgium, the introduction of gas, and the resort to unrestricted submarine warfare are outstanding examples.

One German innovation in the World War was the purposeful aerial bombardment of great cities not in the zone of land operations. Such bombardment was not confined to installations of particular military importance but was directed against the civilian population in the hope of obtaining important moral effects. Important moral effects of the sort desired were certainly not obtained. But there was one important result, and that was to fix the attention of a horrified world on the potentialities in this mode of attack.

The fact that air raids were of little effect in the World War could be attributed to the relative imperfection of aircraft at the time. Since the war the capabilities of aircraft have been vastly increased in almost every respect. The tendency has been, therefore, to assume that their greatly augmented destructive power may be of important or even decisive effect in future war if used for direct attack upon enemy population and civilization. The prospect of air power being so used has naturally inspired an intense horror, and this horror has made the prospect a matter of terrible fascination, even for military men.

Hyper-imaginative alarmists and air power enthusiasts in great numbers have screamed themselves hoarse for

half a generation over the danger from the air, and the sceptics and conservatives have been unable to answer them effectively because the capabilities of the latest types of aircraft have never been put to the test in a major war. Consequently civilian populations are mentally numb with dread and inclined to orient their military policies in expectation of the worst. This psychology favors emphasis on air power as a means of defense and preventive attack.

Because of the extraordinary attention which has been focussed on the possibilities in the use of aircraft for waging war on civilian populations, the whole military profession in European countries has been deeply drawn into consideration of just what those possibilities are. This has involved study of the manner in which the airplane may best be used for war on civilian population, since only on the basis of such tactical study can the real potentialities be judged. But once in this favorite field of tactics the military mind is lost! It seems never to have occurred to the dervishes of air power to inquire whether attack on civilian population can really be effective in achieving the political end of war, which is the destruction of the enemy's will to resist.

It is not intended to question the power of the airplane to effect extensive material destruction, although the exact extent of this power is debatable. It may merely be pointed out that *material* destruction is effective only as it contributes to destruction of the will to resist. The military art has long since recognized that destruction of material *power* to resist, if sufficiently extensive, is certainly destructive of the will to resist. Therefore, in so far as aircraft can be used for this purpose, there can be no question of their utility as an instrument of war. There remains, however, the question of whether material destruction having no important effect upon the enemy's power to resist can have any important effect otherwise in diminishing his will to resist. It is obvious that such an effect must be expected through the creation of fright and discomfort. Wanton destruction can therefore hope to be effective only in the same way as direct attack on civilian life, namely, through breaking a people's morale.

The aeromaniacs assume that direct attack on civilian population may indeed be effective, and even decisive, in breaking a people's morale. In this assumption lies a most extraordinary fallacy. How anyone familiar with the fortitude shown by the human species among the horrors of war in the past can make this assumption is not easy to understand. The theory that the determination of a people to carry on war can be broken by mere punishment rests upon the grossest misunderstanding of the social psychology of war. Since exactly that theory is finding credence today, even in the circles of military supreme commands, it is desperately necessary to impress upon the minds of all who are thinking about future war that the

It has not occurred to the dervishes of air power to inquire whether or not attack on civilian population can really destroy the enemy's will to resist

determination of a people to prosecute a war is dependent not at all upon the punishment to which that people is subjected, but upon two things: (1) *its belief in the justice of its cause*, and (2) *its belief that it has a fair chance of winning, or in any case, of avoiding defeat*. For substantiation of this assertion let one study the causes of the German collapse in 1918.¹

If those who think and speak so much about attacks on civilian population can only be made to grasp this simple truth, the world may be saved a great deal of bootless misery. There is no more sense in the idea of such attacks than there would be in that of massacring all prisoners of war. Quite aside from the certainty of retaliation, can it be supposed that the killing of all prisoners would terrorize an enemy into submission? On the contrary such action would reinforce the opposing people's belief in the justice of its cause to such a degree that the difficulty of subduing that people would be enormously increased. One of the main objectives in war must be the *weakening* of that belief by political strategy, and it would be madness to destroy the possibilities which lie in this direction by resort to wanton violence. The proper conduct of war demands, on the contrary, that every effort should be made to weaken the enemy's belief in the justice of his cause by magnanimously abstaining from all acts of cruelty which cannot have an important effect in weakening material power of resistance.

Let it be remembered that Germany's cause was ruined in the last war by the covetous invasion of Belgium and

the resort to unrestricted submarine warfare. It was the moral indignation against such "immoral" actions which brought the lethargic Anglo-Saxon peoples wholeheartedly into the crusade against Germany. The morale factor may easily be decisive in modern war, into which many nations are all too easily drawn. The nation that is wise will go out of its way to avoid attack on civilian population in the hope that the great force of moral opprobrium may fall upon its less astute enemy. For thus may its own will to victory be reinforced and the passive or active support of other peoples obtained.

The only proper use of violence in war is for taking away a determined people's hope of victory, and this can be accomplished only by destroying or neutralizing that people's material power for attack or resistance in whatever degree is necessary. The proper objective for interior air raids is therefore the mechanism of supply and communication and not the populace.

Two points may be made in conclusion. In the first place, if attack upon civilian population were effective in destroying will to resist, such attack did not have to await the advent of the airplane. It has almost always been possible, yet, as the result of painful experience, the race *had* learned, before the aeromaniacs frightened it out of its wits, that such attack was both ineffective and unwise. Hence the well-known and formerly respected rules of land warfare. In the second place, if the military profession is inclined to resort to mere punishment as a mode of prosecuting war, it will do well to refer to our existing knowledge in the field of penology, where will be found abundant proof that brutality of punishment has never been effective as a deterrent to the human will but rather a provocative stimulus.

¹Every officer who may be called upon to exercise high command ought to be required to imbibe once a year, with the same insistence with which the articles of war have traditionally been read to soldiers, the documentary materials published by Ralph H. Lutz in his *Causes of the German Collapse in 1918* (Stanford University, Calif., 1934).





By MAJOR ALVA F. ENGLEHART, C.A.C.

SUBMARINE mines will play an important rôle in the protection of the entrances to our harbors, in the event of war. Realizing this, much thought and effort has been expended wisely in the past few years in order to increase their defensive powers. Many of the defects which existed have been overcome, or at least minimized. Satisfactory matériel is, at last, available as a result of the progress made.

The development work recently completed was not easy and it was found necessary to try many schemes before correct methods were found. Space limitations prohibit the covering of the details of developments but some of the defects and the remedies found for them will be outlined. We will discuss first, some of the defects common to all single-conductor mine systems with their remedies; secondly, the defects in the present installed system and the progress made for their correction, and thirdly, the newly developed mine system.

COMMON DEFECTS AND REMEDIES

In all single-conductor mine systems the primary source of trouble to the mine personnel has been the handling of the cable. Cable with jute wrapping, when new, is easy to handle, is easy on the hands, and ordinarily will be free from kinks during the actual laying operations. However after the cable has been laid once, the jute wrapping almost invariably breaks. This exposes the rough armor and permits kinks to be formed readily. To overcome

these defects a coating of rubber was vulcanized on the outside of the armor in lieu of the jute wrapping. This rubber jacket is very tough and resists abrasion and prevents kinks. When this improved cable is laid in figure eights, it normally lays flat and runs out without exertion or injury to personnel. Actual tests have proven that it will withstand several times the number of plantings that the jute covered cable will stand.

Mines have a tendency to rotate when planted, due to the action of tide and currents. In particularly rough waters, they have been known to twist off the cables and mooring ropes. This defect has been overcome by the use of a swivel which permits the mines to rotate freely yet maintains the required electrical circuit. The use of the swivel does not require any change in the method of planting.

The many difficulties that have been encountered in the past as a result of the cable being broken at the mine on account of the sharp bend given to it where it enters the mine have been overcome by the lashing of the cable to the mooring rope some distance below the mine. Special clamps have been developed for this purpose.

New equipment makes sweeping operations extremely hazardous

The watertight packings in the mine and selector box developed leaks after the mines had been planted for some time. This defect has been overcome by a change in the character and type of packing used. The loading wire which permitted moisture to enter the mine has been replaced by a new type of wire.

It was found that the moisture imprisoned in the mine when planted would condense on the wire and would eventually cause a ground. To overcome this, a new type of waterproof insulation is now used. Unless a mine actually leaks, the moisture in the mine will have no adverse effect on the electrical circuit.

A new type fuse has been developed for use in the selector box. It provides a better time element and is rugged enough to withstand rough handling. The selector box has been modified so that the fuse can be changed without opening the box and air pressure can be used to assist in preventing moisture from entering the box.

A new type of circuit closer which can be armed by tilting the mine or by shock to either the mine or the mooring rope, has been developed. With this circuit closer, mines will be armed both by surface vessels and submarines running submerged. The electrical circuit has

been made positive and is not subject to a rolling contact.

The firing device in the mine has been made a current regulating device and is no longer a voltage regulating device. Positive settings with indefinite length of life have thus been assured. Since the device is not sensitive to peak voltages, increased safety has been obtained.

MINE SYSTEM NOW INSTALLED

With reference to the single-conductor mine system that is now installed, several things have been done to improve the operation of the equipment and make it more effective. The greatest difficulty encountered during target practices has been the unintentional firing of mines due to the stepping of the selector. This defect was caused by transient currents developed in the system during the application of the firing voltages. It was found that the addition of a small resistance would overcome these transient currents and prevent their appearance. In order to preclude any possibility of the selectors stepping, during firing, due to the effect of transient currents, a resistance has been added also in the selector and this prevents the voltage at the distance selector from reaching zero. Since the addition of these two resistances, no evidence of un-



Mine, anchor, and marking buoy go over the side

intentional stepping of selectors has manifested itself, either in a theoretical analysis of the system or in actual target practice.

With a certain combination of events, it was found that the selector would stop in the retracted position when a mine was contacted. With this condition existing and the firing voltage applied, the correct mine would be fired but the selector would step to the next mine and that mine would be fired also. This defect was readily overcome by a slight addition to the selector.

The use of locking voltage has been eliminated for it was found that the locking voltage actually developed transients that had an adverse effect on the system. In addition, it was found that the locking circuit actually provided a path for firing voltage from one group to another. Since the unintentional stepping of selectors has been eliminated, no need remains for the locking voltage; hence, that circuit and voltage have been removed from the system.

The control of the switching relay in the casemate was found to involve too many circuits and steps. Circuits have been rearranged and some circuits have been eliminated, resulting in more positive operation of the switching relay.

The characteristics of the stepping coils of the selectors have been changed to decrease the time constant of the coil and to increase the current. This change has produced more positive action of the selector. The selector face has been redesigned to eliminate wear of insulation between contacts which had resulted in arcing between contacts. This change has increased the useful life of the selector.

Storage batteries have been eliminated and a source of manual power added, the voltage of which is comparable to machine operation voltage. The use of rectified alternating current in lieu of direct current has become standard practice.

Other slight changes have been made with a view of obtaining a reliable defensive system of submarine mines.

Most of the changes have been made in the systems that are now installed, so that the service can be assured that they have really effective equipment to plant in our harbors.

NEW SYSTEM OF CONTROL

During the past few years, development work has not been directed exclusively to the elimination of defects in the present systems. A new system for the control of submarine mines has been developed by Master Sergeant Theodore Gunther, Coast Artillery Noncommissioned Staff, and the author of this article. In broad outline, this new system employs commercially available parts, easily procurable and less expensive than previous mine systems. All component parts have been used in commercial practice for many years and records indicate that their life expectancy is very great. Since major emphasis has been laid on contact firing, the equipment required for the system has been greatly reduced. The desirable features of testing mines and observation firing have been retained. The system will be assembled in units of ten groups, which can be supervised easily by one operator. The duties of the operator have been greatly simplified, and by a great decrease in the size of equipment on shore, the operator has within arm's reach all controls for the ten groups. Virtually all operations and safety features have been made automatic.

Recent War Department instructions emphasize the importance of submarine mine training. Changes in the conduct of target practices have been made to acquaint all personnel with the improved equipment and to insure its proper use and maintenance.

Naval officers will not take their ships intentionally into a hostile mine field. If an enemy harbor is protected with submarine mines, extensive sweeping operations must be conducted before ships can be brought into it with any degree of safety. With the new equipment now available, sweeping operations will be extremely hazardous and it is doubtful whether they can be accomplished at all.

THE PROFESSION OF ARMS is exacting. Contrary to the popular misconception in such matters, an officer of the Army must constantly study to keep abreast in his profession. He must know his drills, his tactics, his weapons, his men. He must know Army paper work, Army accounts and military law. He must know a thousand and one other things so well that in case of need he can employ this knowledge. No other profession, save that of medicine, demands so wide a range of knowledge; and, like medicine, the acquirement of this knowledge and its method of application quite often spell the difference between life and death.—THE BLACKHAWK.

Personnel Policies—By Major Clare H. Armstrong, C.A.C.

THE tenor of correspondence received in the Office, Chief of Coast Artillery, indicates that many officers stationed outside the District of Columbia, do not have a clear picture of the policies and regulations affecting the assignment of personnel. This could hardly be otherwise since policies of this nature are rarely published. This article is written with a view to clarifying the picture to some extent.

FOREIGN SERVICE POLICY

The commissioned personnel in foreign service garrisons is maintained at 100 per cent, and a replacement is required for each officer returning to the United States. Replacements are selected from the Volunteer and Regular Foreign Service Rosters. The Regular Foreign Service Rosters are arranged according to grade; the officer having the least amount of foreign service heading the roster for his particular grade. The various grades on the Regular Foreign Service Rosters are divided into groups of from no foreign service to 6 months foreign service, 6 months to 18 months, 18 months to 30 months, and so on. All officers in the same group are *equally* due. While officers in the same group are equally due for foreign service, all are not *eligible* and *available* and it is sometimes necessary to pass over 1, 2, and even 3 whole groups before selecting one who is eligible and also available.

An officer is considered *eligible* for foreign service when a three-year interval has elapsed since his last tour. He is considered *available* after he has served a minimum of two years at a post or station, or four years on a D.O.L. assignment. An officer on duty as a student or instructor at a service school, college, or the U. S. Military Academy cannot be relieved in the middle of the school year, except for cause, and therefore he is not considered *available* until the following summer. Also, if an officer changing station is *eligible* and normally due for foreign service within a year, he is generally ordered on foreign service at the time the change of station occurs.

Exceptions to these policies are made only for very cogent and unusual reasons.

Preference cards are *always* consulted and an effort is made to submit recommendations in accordance with the officer's expressed desires, if at all practicable. Many times, however, all the officers available and eligible to fill vacancies occurring in a particular foreign service garrison desire other garrisons. Then, of course, choices for station have to be disregarded and other recommendations submitted. Recently, seven officers were reported returning from a foreign service department and the Chief of Coast Artillery was requested to furnish replacements. *None* of the officers available and eligible to fill those vacancies, expressed a desire for that particular foreign service department. The consequences are apparent.

If an officer desires to be assigned to foreign service, he should volunteer in accordance with Par. 4, AR 605-175, listing the departments desired in order of preference. By

so doing, the officer who is *not due for foreign service*, but otherwise eligible and available, is assigned in strict accordance with his preference. The officer who is *due*, eligible and available for foreign service gains a certain advantage by volunteering, in that he is selected ahead of others in his group who merely state their choices for foreign service on the preference card. One card indicates that the officer especially desires foreign service as soon as possible, while the other merely expresses the choices for foreign service garrisons should it be necessary that he go. Volunteering for foreign service does not necessarily mean that the officer who is *due* will be assigned to his first choice, especially if his first choice happens to be for a station at which he has already served, since, all things being equal, the officer who has never had an opportunity to serve at a particular station is given preference.

POLICIES GOVERNING SERVICE IN THE UNITED STATES

The preference card of an officer is always consulted prior to submitting a recommendation. Recently, however, certain policies have been promulgated by the War Department which make it extremely difficult to grant the desires of the officer concerned. For instance, an officer stationed at Fort Monroe, prior to going on foreign service, would not ordinarily be recommended to return to that station upon completion of his foreign service tour as it would violate the so-called "Locality Policy," which prevents, under normal circumstances, the returning of an officer to the general locality in which he has recently served.

Another policy concerns "preferred stations." It was adopted to prevent an officer from serving a number of tours at such stations as Fort Totten, Fort Winfield Scott, and Fort Monroe, for example.

The policy reference minimum tour of duty was mentioned under the "Foreign Service Policy," but the writer believes it warrants further mention here. This policy is violated only in case of critical conditions in an officer's personal affairs or for reasons obviously in the best interests of the service. Consequently, a request for a change of station before serving two years with troops or 4 years on a D.O.L. assignment cannot be granted favorable consideration.

POLICIES REFERENCE GENERAL SERVICE SCHOOLS

No assignment, other than *foreign service* prevents an officer's detail to the Command and General Staff School, the Army War College or the Army Industrial College. Many officers have the impression that an assignment with the civilian components, for instance, prevents consideration of his name for any of the above-mentioned schools until termination of the normal four-year tour. This is absolutely *not* the case as foreign service *alone* precludes such a detail.

PREPARATION OF PREFERENCE CARDS

It is highly important that an officer, when preparing

his annual preference card, express his desires in *detail*, using the back of the card, if necessary. He should show, for example, priority as to classes of duty desired, such as troops, National Guard, Organized Reserves, and R.O.T.C., listing under each, again in order of priority, the stations or localities preferred. If this is done, the problem for the Chief of Coast Artillery is greatly simplified, and in many cases the desires of an officer can be more nearly approached. Too often the notation on the preference card is "A.W.C.", "C.&G.S.S.", or "anywhere in the San Francisco Bay region"; many list no preference, while others list only one. Should the one be impracticable, it is not known whether the officer prefers Florida, Maine, or California, and a wild guess is the answer. This is especially true when officers state that *no* change of station is desired. It should be assumed that a change is possible though not probable and a complete picture of desires should be shown.

EFFICIENCY REPORTS

Extracts of the original efficiency reports submitted on each officer of the Coast Artillery are filed in the Personnel Section, Office, Chief of Coast Artillery; however, it is against the policy of the Chief of Coast Artillery to permit perusal of these reports by the individual officers concerned. All originals are available to the officer by visiting The Adjutant General, Room 258, State Building, 17th and Pennsylvania Ave., N.W. It is believed that this policy is wise in that extracts *only* are retained in the Office, Chief of Coast Artillery; furthermore many of these extracts are in symbol form which are not clear to the inquiring officer.

REPLIES TO PERSONAL LETTERS

Some officers may be dissatisfied with the replies to their letters of inquiry as to future station and details. An earnest effort is made to answer *all* letters as *fully* as possible, but in almost every case the answer involves prognostication on events over which the Chief of Coast

Artillery has no control. After many attempts at reading future events by gazing into the crystal ball and an almost equal number of failures, a reply to a letter of inquiry has simplified itself into one of "noted for consideration when your name comes up for assignment." This statement may cause the recipient of the letter to see red, but it is just as distasteful to the writer. There is no question but that it is the only fair and accurate answer that can be given in many cases.

There are certain questions, however, that can be answered accurately, while others can be answered only within wide limits, such as:

1. How much foreign service have I to my credit?
2. What is my general efficiency classification?
3. Approximately, when will I be due for foreign service?

Questions 1 and 2 can be answered accurately, while the last will be approximate.

Such questions as: "What are my chances for the C.&G.S.S., A.I.C. or A.W.C.?" naturally cannot be answered as this involves comparison with the records of many other officers.

Occasionally a request is received for a list showing vacancies that may soon become available. It is against the policy of the Chief of Coast Artillery to submit such lists for the simple reason that they can no longer be prepared with any degree of accuracy. In past years, D.O.L. assignments were for a fixed period of four years and anyone could, by a judicious use of the "Blue Book," list the vacancies that would occur in years to come. This is no longer possible since such assignments are now extended to 5, 6, and sometimes 7 years. As a matter of fact it is understood that these lists submitted in the past, rarely accomplished any good since all were returned with the most desirable details checked, while other details were ignored.

It is hoped that this article has assisted officers of the Corps in gaining a better understanding of the policies governing assignments of commissioned personnel.

THAT A MAN shall serve his country in time of war is noble, brave, and patriotic; but that a man shall properly prepare himself in time of peace to serve in war, is all of these things and more. It is noble with nobility that is real, not sham. It is brave with a bravery which assumes in time of unemotional peace many burdens; not the least among them that of bearing the lack of appreciation of those who do not consider preparedness or training necessary. It is patriotic with a patriotism more impelling than the fires which burned in the breast of Leonidas at Thermopylae.—BULLETIN, THIRD C. A. DISTRICT.

CHANGES IN ANTI AIRCRAFT TACTICS

By MAJOR WILLARD IRVINE, C.A.C.

MAJOR as well as minor changes in the tactics of antiaircraft artillery are contained in instructional matter recently issued by the War Department, the Command and General Staff School, and the Coast Artillery School. Influenced greatly by tactical studies made during the past few years by the Air Corps and the Coast Artillery Corps, corrections in Coast Artillery Field Manual, Volume II, Part One, pending its complete revision, include a reduction in the width of the critical zone, a contraction of the gun defense, and an extension of the searchlight defense. Further, conflicts in channels of command for the antiaircraft artillery of the corps and army have been clarified.

Critical Zone

One major change is the reduction of the critical zone from 1 minute to 45 seconds. In the years after the World War, when the formulation of antiaircraft artillery tactics began, it was considered "desirable that the defense be capable of delivering effective fire on bombers for a period of at least one minute" before they reach the bomb-release line. During those years, when the speed of bombers did not exceed 100 mph—and that was not so long ago—the width of the critical zone for an altitude of 15,000 feet was 3,000 yards, and the area to be covered by gun fire was 25 square miles. With the advent of 200 mph bombers, the width of the critical zone doubled, increasing directly as the speed of the plane, and what is more, the area to be covered by gun fire almost quadrupled. Increasing approximately as the square of the speed of the plane, this area became 86 square miles. Consequently, it was impossible

More Targets Can Be Taken Under Fire and More Rounds Fired.

for three batteries of 3-inch guns to cover adequately this enlarged area. Hence, either the number of gun batteries had to be increased or the critical zone reduced. After careful study both of these things have been done. The minimum number of gun batteries employed to cover the critical zone is now four; and the critical zone is changed from the distance covered by an airplane in 1 minute to that covered in 45 seconds, thus reducing its width from 6,000 to 4,400 yards, and its area from 86 to 57 square miles. The effect of speed on the size of the new 45 second critical zone is illustrated in Figure 1.

An equal reason for this reduction in the critical zone is that during the time required for the bomb-sighting operation, a period which may be taken as 45 seconds, bombers fly a straight and level course and are therefore more vulnerable to gun fire.

The new procedure in laying out a gun defense, which is described in some detail below, divides the critical zone into an inner half and an outer half, approximately equal in width. This division makes it possible for four batteries of guns to cover the inner half with the fire of at least two batteries, and the outer half with the fire of at least one battery, as illustrated in Figure 2. This is considered the minimum coverage for a defended area.

GUN BATTERIES

The most important single paragraph on the gun tactics of rear areas (paragraph 57, CAFM) has been completely rewritten. Here, the manual has generally been interpreted in the past as locating gun batteries sited for 200 mph bombers about 3,000 yards from the objective, with 6,000 yards between ad-

EFFECT OF SPEED ON SIZE OF CRITICAL ZONE

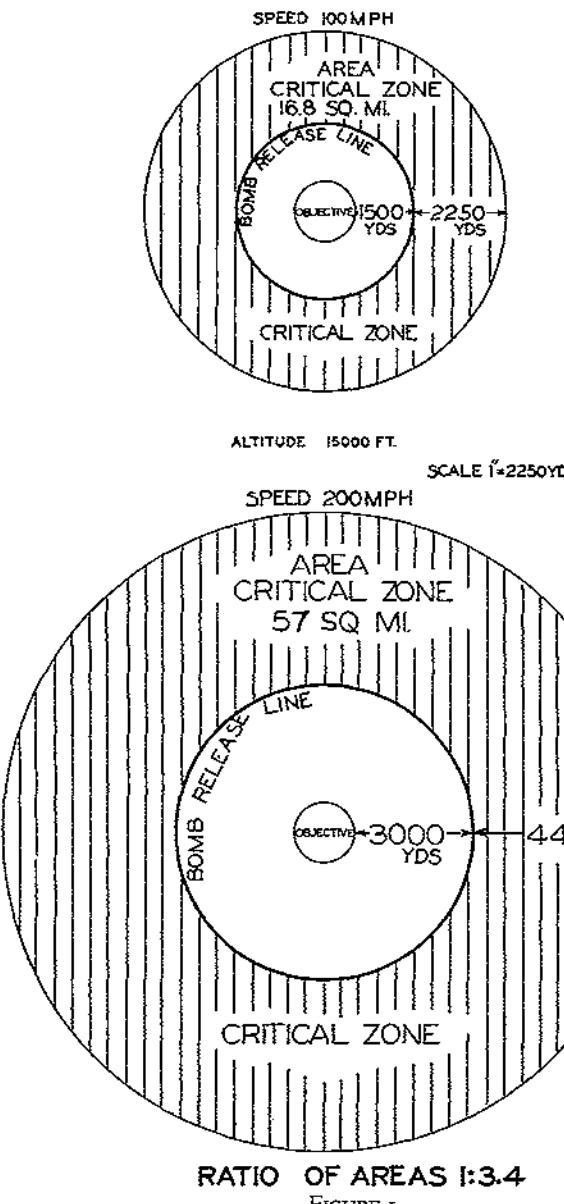


FIGURE 1

COVERAGE OF CRITICAL ZONE WITH 4 BATTERIES OF GUNS

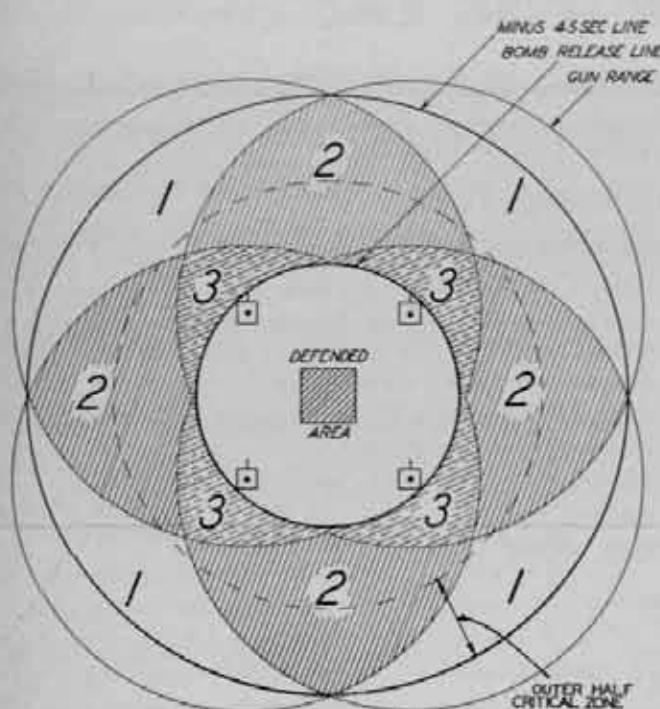


FIGURE 2

adjacent batteries. At the Fort Knox AA-AC Exercises in 1933, even greater distances were used—6,000 yards and 9,500 yards, respectively. In a recent illustrative example contained in the "Special Course for Reserve Lieutenants," however, the gun batteries are sited about 2,400 yards from the objective, with only 4,000 yards between adjacent batteries. This modification increases the overlap of adjacent gun batteries from 6,000 to 8,000 yards, which in turn gives additional coverage to the dead space that exists over each battery because the maximum elevation of most guns is 10° less than vertical. The revision follows the conclusions, reached by both the Air Corps and the Coast Artillery Corps in studies resulting from the Fort Knox Exercises, that, in general, a close-in gun defense, with batteries located about 2,500 yards to 3,000 yards from the objective, can take more planes under fire and also fire more rounds under the special method of attack considered most favorable to bombardment aviation.

In the original text (CAF), extension of the gun batteries outward was limited only by the consideration of covering the critical zone with the fire of one battery, and by the general rule that adjacent batteries should not be more than 6,000 yards apart. Now the gun defense is pulled in, until, as we have just seen, the inner half of a 45-second critical zone is covered by the fire of at least two batteries and the outer half by that of at least one battery. Additional gun batteries are employed to increase the density of fire throughout the critical zone rather than to increase the depth of the defense.

Using the regiment as a basis of instruction, the field manual employs 3 batteries of guns with 15 searchlights

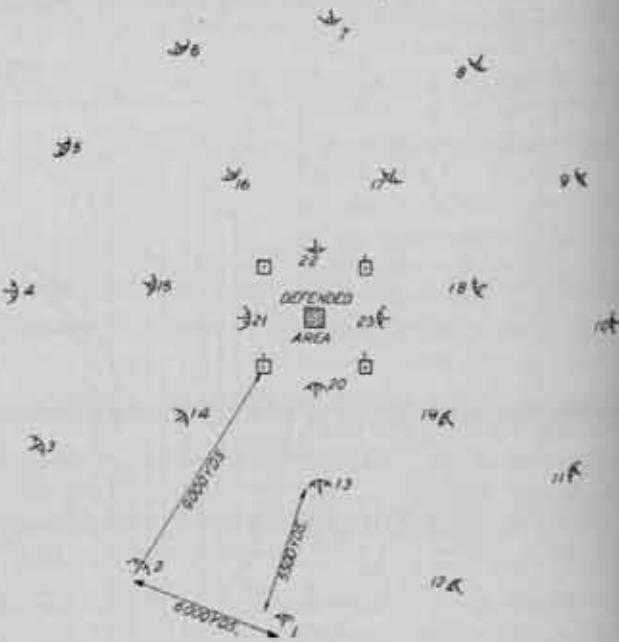
to illustrate the defense of an area. But instructional matter now issued utilizes 4 batteries of guns with 20 searchlights for this purpose. This increase in matériel is not surprising since the defense at the Fort Knox Exercises consisted of 4 batteries of guns and 17 searchlights.

SEARCHLIGHT DEFENSE

As regards searchlight defense, tests over a period of several years have shown that, in general, bombers are first illuminated directly over the outer ring of searchlights. This agrees with the conclusions of the British Army as published in the February, 1936, Journal, Royal United Service Institution. Accordingly, it is now recognized that this ring of lights should be located from 8,500 to 10,000 yards from the gun defense, rather than the 6,000 to 7,000 yards given in the text. This change allows for the short period of time required to get on the target and fire and for the time of flight of the projectile, and insures that bombers will be met with fire at the maximum horizontal gun range of 6,000 yards. Extension is limited, however, by the requirement that the distance between adjacent lights should not exceed 6,000 yards. In a recent map problem at the Coast Artillery School the principal is negatively stated thus: "Should insufficient searchlights be available to provide all-around illumination so as to enable gun batteries to fire at their maximum effective range, the searchlight defense should be contracted so as to cover as much as possible of the gun field of fire with adequate illumination." Figure 3 illustrates the new extended searchlight defense.

COMMAND CHANNELS

Also of major interest is the new doctrine which affects command channels. Until recently the Command and



TYPE DISPOSITION OF SEARCHLIGHTS

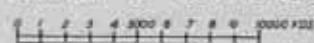


FIGURE 3

General Staff School taught that the antiaircraft artillery regiment of a corps operates under the command of the corps chief of artillery, and that orders for the antiaircraft artillery should be placed in the field artillery sub-paragraph of paragraph 3 of field orders. Considered fallacious by many officers of other branches, as well as by Coast Artillery officers, this doctrine was changed at the beginning of the present school year. The antiaircraft artillery is now placed directly under the corps commander and the antiaircraft artillery orders are given in a separate lettered sub-paragraph of paragraph 3. The instructional circular reads:

"The commander of any force is responsible for the co-ordinated employment of all means and methods adopted by the elements of his command for defense against air attack. He insures this coordination directly or through a designated antiaircraft officer."

"Instructions for the antiaircraft artillery and for units assigned exclusively to antiaircraft defense will be placed in a lettered sub-paragraph of paragraph 3 of the commander's order"

AIR DEFENSE ANNEX

Related to these tactical changes is a new outline of an Air Defense Annex to Corps Field Orders which is based on a study of the methods of coordinating all the means of defense against air attack in a corps. Paragraph 2 designates the general mission of all forces in maintaining an effective defense against enemy air attack and observation. Paragraph 3 has two main divisions: (a) instruction for ground antiaircraft fire, including auxiliary weapons, and

(b) instructions for passive defense. The selection of supply installations and routes and bivouacs of trains and convoys is considered in paragraph 4; and instructions for the antiaircraft intelligence service appear in paragraph 5.

SUMMARY

What has been said may be summarized thus:

(1) The critical zone has been reduced from 1 minute to 45 seconds.

(2) The minimum coverage required for the critical zone is a concentration of the fire of two gun batteries over the inner half, and of one over the outer half.

(3) Additional batteries are employed to increase the density of fire throughout the critical zone rather than to increase the depth of defense.

(4) Gun batteries are sited closer to the objective, with 4,000 yards between adjacent batteries as preferable to 6,000 yards.

(5) Four batteries of guns and 20 searchlights are employed instead of the present regimental organization of 3 batteries and 15 searchlights.

(6) When sufficient lights are available, the outer ring of searchlights is located 8,500 to 10,000 yards from the gun batteries.

(7) The antiaircraft artillery is directly under the force commander and does not operate under the chief of artillery.

(8) A new outline for the Air Defense Annex of a Corps Field Order has been issued.

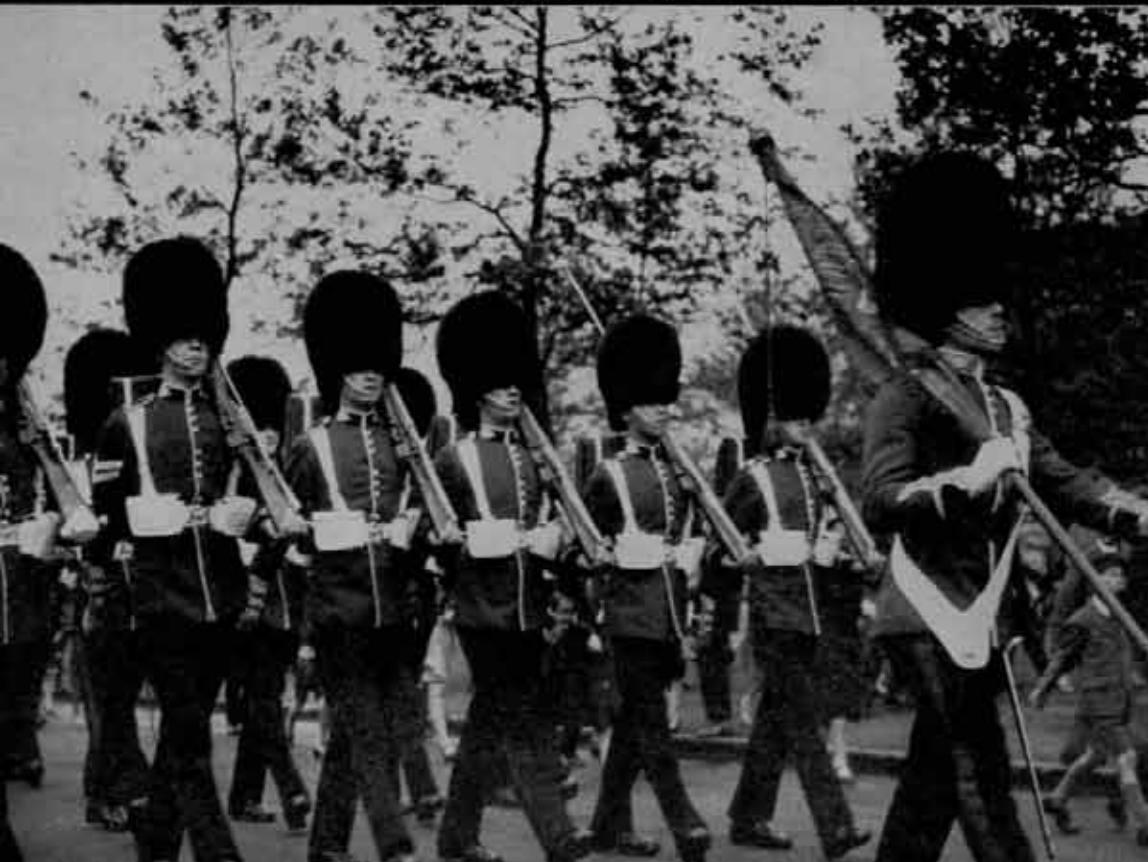


Japanese antiaircraft gun battery at Kanoya



*ASSASSINS TO AN IMPERIAL GUARD. The personal
guard of Der Führer marches past in the Wilhelmstrasse*

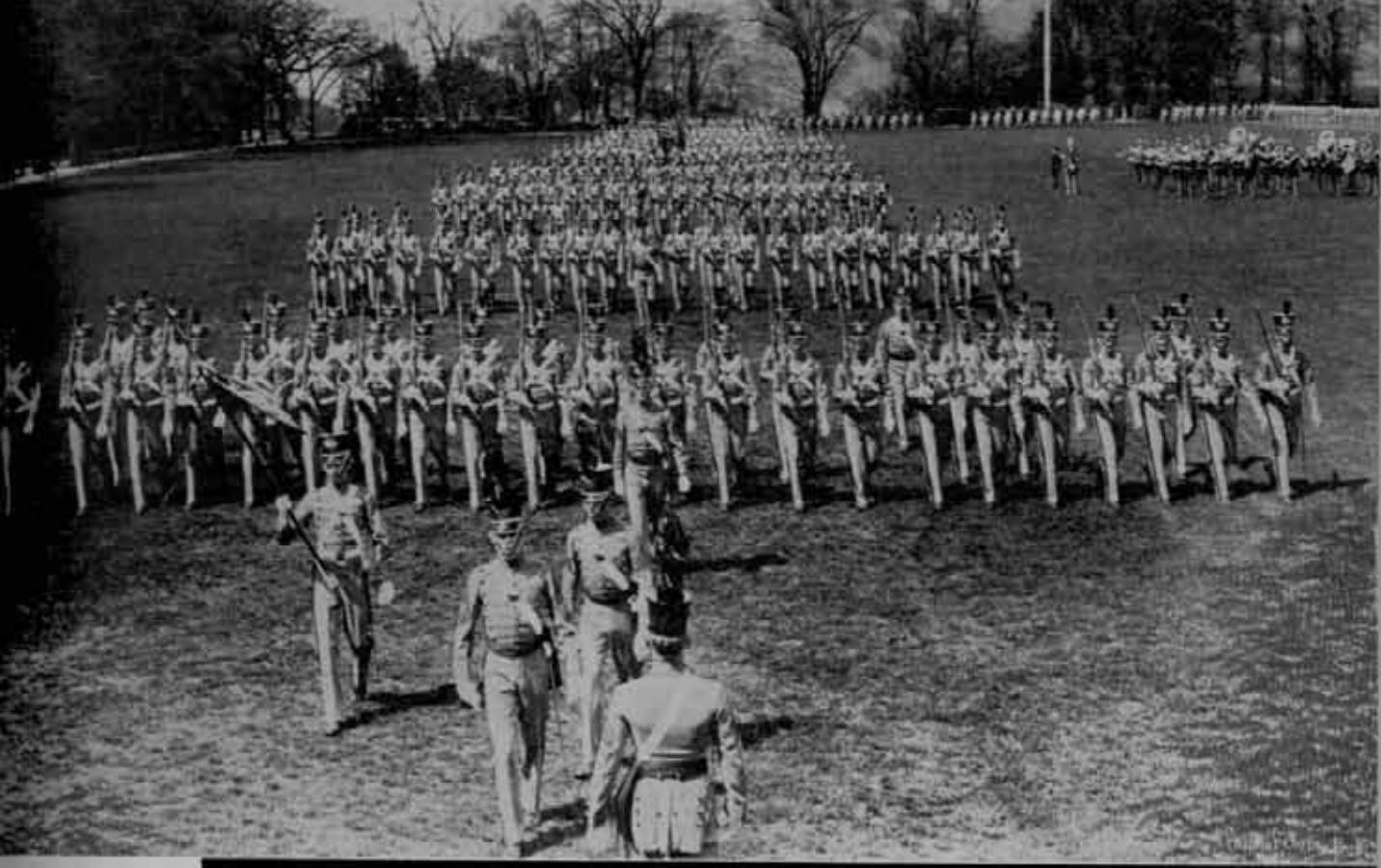
*GUARD OF A KING-EMPEROR. The tall busbies of
the Foot Guards go by St. James's Palace*



PIC
ME



*GUARD OF A
Caesars stride the
streets of Rome*



AND, SPEAKING OF PICKED MEN . . .

GUARD OF A CITY. The International Brigade, credited with the lion's share of the defense of Madrid, awaits its turn on the firing line



ED



So did the
d daggers of



Above: Der Führer witnesses the test of a new type stereoscopic height finder.

FINDERS



Above: A British sound-locator detail listens for a warning bum.



Left: The latest in anti-aircraft devices. A British height finder scans the skies.

(Picture Post)

Right: Austrian gunners man a twin antiaircraft machine gun at maneuvers near Vienna.



(Pictures, Inc.)

FIXERS

Left: This French soldier is at the controls of a dual-purpose (antiaircraft-antitank) 13.2 mm. Hotchkiss.



Below: At home, the Coast Artillery's 3-inch antiaircraft gun goes into action.



(Acme)

ANTIAIRCRAFT RECORDS SECTION

By 1st LIEUTENANT FRANK P. CORBIN, Jr., C.A.C.

THERE have been many questions raised concerning the results reported as obtained in antiaircraft target practices. In outlining the operations and basic requirements of records sections, it is therefore not out of place to discuss the value of camera records as compared to visual records. In the past, even the Knox Trophy was awarded to an antiaircraft gun battery upon results based partially on visual observations. Antiaircraft experts and junior officers, such as myself, know that the results of gun practices computed from visual observations are usually not worth the paper on which they are written.

On the other hand, camera records are accurate and positive and can be obtained in nearly all cases, by intelligent training and the exercise of reasonable care. They permit no adjusting or so-called *synchronizing* and soldiers who have served with the antiaircraft artillery know that these are the only records worth while. Inexperienced people will try to convince you otherwise, but those who have given the subject some thought know better.

It is to be hoped that camera records will always be available and that their use will tend to limit criticism and stop the whisperings as to ulterior motives. Everyone should compete on the same basis—there cannot be any real comparison and fair competition until they do. I contend that any comparison of gun battery firings not based on camera records is unworthy of the time required for its consideration.

However, visual records are still required. Therefore to make this paper as complete as possible a discussion of the visual detail is included. But it is hoped that visual records will not be used, except when camera records are not available.

PRELIMINARY PREPARATIONS

The officer in charge of the records should consider the following items prior to any target practice.

1. Supply of Forms.

The following list of required forms is offered merely as a guide. The number of copies listed are usually ample for two complete regimental target practices. In ordering forms make it a rule to "Always err on the plus side."

Form No.	Copies	Form No.	Copies	Form No.	Copies
AA-1	60	AA-6	400	AA-13	150
AA-2	100	AA-7	100	AA-14	50
AA-3	100	AA-8	500	AA-16	50
AA-4	1,000	AA-9	200	AA-17	30
AA-5	500	AA-10	100	AA-18	500
		AA-11	250		

2. Selection of a Suitable Base Line and Observation Station.

The length of the base line to be used for each of the various types of practices is of primary importance. Suggested minimum and maximum lengths are listed below. The maximum lengths indicated will usually give the best results:

Gun Practices, 3,000 to 5,000 yards.

M.G. Practices, 500 to 1,000 yards (1,500 to 3,000 feet altimeter).

S.L. Practices, 1,500 to 3,000 yards.

The difference in height of site between observing stations will materially affect altitude computations. This difference must be determined and it is usually best to run a line of levels from O-1 to O-2. Throughout this paper O-1 is used to designate the gun position observing station and O-2 the flank station.

Observing stations must be so located as to have clear fields of view. The O-2 station for gun practices should be as nearly on the extension of the expected crossing courses of the target as is possible. For machine-gun practices the base line should be nearly parallel to the platoon front. For searchlight practices the base line should be approximately perpendicular to the center line of the defended sector and forward of the objective.

Instruments must be oriented properly. In case instruments are to be set up in new fields where it is necessary to find North it will be advantageous to refer to pages 434-436 of the November-December, 1936, issue of *The JOURNAL*.

COMPOSITION OF RECORDS SECTION

The records section is composed of the following details or sub-sections:

1. The camera detail.
2. The visual detail.
3. Timekeepers.
4. The wire detail.
5. The meteorological detail.
6. The radio detail.
7. The panel detail.
8. The target detail.
9. The computing detail.

DUTIES OF EACH DETAIL

The camera detail is charged with the care, setting up and operation of the cameras. It is also charged with the development of the films and completion of forms No AA-18 for both gun and machine gun practices. Deviations are not obtained for machine gun practices. Cameras are not used for searchlight practices.

The visual detail for gun and machine-gun practices consists of a target position detail and a deviation detail. It is charged with the responsibility of furnishing, from visual observation, the same data as is furnished by the camera detail. For searchlight practices it is charged with the taking of readings in azimuth and angular

The results of gun practices computed from visual observations are usually not worth the paper on which they are written.

height or altitude of the plane as often as possible (every ten seconds) after it is illuminated.

The timekeepers are charged with furnishing, for gun and machine-gun practices, the necessary data for computing the record of the corrected time of action and for the synchronization of records. For searchlight practices they record the time from "In Action" to pick-up and the total carrying time.

The wire detail is charged with the maintenance and installation of all wire lines pertaining to the records section including the proper telephone hook-up for the visual detail.

The meteorological detail is charged with the furnishing of required meteorological data to the battery commanders concerned immediately before trial fire and when necessary during firings.

The radio detail is charged with the maintenance of communication with the target towing plane. Two-way radio is almost essential.

The panel detail coordinates its activities with the radio section and operates when the radio section is unable to maintain communication with the target towing plane and at other times when directed.

The target detail secures all dropped targets, and records the perforations of the target for both gun and machine-gun practices.

The computing detail, under the direct supervision of

the officer in charge of records, prepares the required data for target practice reports.

MATÉRIEL

Before proceeding to the discussion of the detailed operation of the camera section, it is well to consider the important items of matériel and factors governing their use.

CAMERAS—RECORDING THEODOLITE PH-BA-32

This camera is a sturdy instrument but it should not be subjected to rough treatment. All members of the camera detail should be well trained in the proper methods of handling cameras under all conditions. *Cameras should always be in operating order.* Prior to their use a complete and systematic check of all equipment pertaining to them should be made. The main points that should be covered are listed below:

1. Are the optical systems of the camera in adjustment? If, by actual operating test, it is found that the systems are out of adjustment, correction should be made as outlined in the camera instruction book issued with the instrument. The only satisfactory means of checking this adjustment is by actually photographing a well-defined distant object and seeing that it appears on the marked center of the projected film.

2. Does the camera data appear on the developed film? This should be checked on the film mentioned in para-



Camera-Recording Theodolite (PH-B4-32) in use.



Antiaircraft Observation Instrument, M-1.

graph 1 above. If the data does not appear, and the camera lamps were functioning, the instrument must be sent to the proper shop for repairs.

3. Will the motor operate the camera at a tachometer speed of better than fourteen with a full load of film? This can be checked by use of old film. To check this the batteries must be fully charged. A speed that is too low can ordinarily be corrected by cleaning and oiling the motor and adjusting the tension of the belts. Should the motor fail to start when the switch is thrown, operators should be prepared to start the motor by hand.

4. Does the film feed properly?

5. Are all the electrical contacts, switches, etc., of the instrument in good condition?

6. Do all counters turn over easily and smoothly in the operation of the camera? No adjustments for the counter systems should be made locally. If the systems do not work it is necessary that the instruments be sent to the shop for repairs.

7. Are the camera levelling bubbles properly adjusted? They must be so set that the instrument will follow a complete horizon line on a 360° rotation at a zero elevation.

TIME INTERVAL DEVICE—TYPE PH-35

1. Are all the contacts clean and tight?
2. Are the mercury cups filled so that positive action of the TI counters results?

3. Does the time interval device operate at the rate for which it is set? At a setting of a one second interval, a fifteen-minute run against an accurate stop watch with a variation of less than one second may be considered satisfactory.

STORAGE BATTERIES AND DRY CELLS

All storage batteries must be kept at full charge. New replacements for each dry cell should be on hand at all times.

MISCELLANEOUS EQUIPMENT

The remainder of the equipment pertaining to the spotting set is not discussed here as ordinary inspection methods should determine its serviceability.

CAMERA DETAIL

This detail consists normally of a noncommissioned officer, the chief of detail, and six assistants. The chief of detail is responsible, to the officer in charge of records, for the proper conduct of the entire detail in both photography and development.

Three men are required for each camera station; one man to act as the camera operator, the second as tracker, and the third as a "spare" trained to take over the duties of any member of the section. Each detail should be assigned to a particular theodolite and should not be shifted during the target practice season.

For the camera detail there should be at least three separate telephone lines between O-1 and O-2. One line is needed for the necessary intercommunication. The other two lines are for the TI (power) circuit. Each

twisted pair can be used as a low resistance conductor or the TI system may be placed on one pair, thus leaving a spare line.

In placing the cameras in position for recording, the following items are important.

1. The O-1 camera should be placed as near the center of the firing battery as is practicable. When two batteries are firing from adjacent positions an O-1 station common to both batteries may be used. On solid earth or sand a distance of ten yards from the nearest firing gun will give sufficient solidity to the camera station to prevent excessive vibration on the discharge of the piece.

2. A very stable base must be provided for the O-1 camera for gun battery firings. A section of heavy iron pipe set in reinforced concrete makes a fine base.

3. The time interval device and its batteries should be located at the O-1 station.

CAMERA DETAIL—CHECK LIST—DAY PRACTICES— GUN AND MG

1. Prior to the practice:
 - a. Are the filters on the cameras?
 - b: Are the stop openings set according to the reading of the light meter?
 - c. Are the speeds at the correct tachometer readings?
 - d. Are all film magazines fully loaded?
 - e. Are the cameras oriented?
 - f. Is the time counter reading the same at both cameras?
 - g. Are charged batteries in use throughout the system?
 - h. Are all lights and switches in operating order?
 - i. Is the film changing bag close by each camera?
 - j. Are all the counters operating?
 - k. Is the time interval device connected properly and in working order?
 - l. Is there sufficient power to operate both TI counters?
 - m. Is the TI switch off at the O-1 station and on at O-2?
 - n. Is the CAMERA COUNTER TIME recorded?
 - o. Is the film properly threaded?
 - p. HAS THE DATUM POINT BEEN PHOTOGRAPHED BY BOTH O-1 and O-2 CAMERAS?
 - q. Are the camera telephones in operating order?
2. Prior to each course:
 - a. Is there enough film in the camera for the course?
 - b. Check—"b," "c," "e," "g," "j," "n," above.

(NOTE: Every difference in time counter readings between O-1 and O-2 must be recorded before the readings are rematched.)
3. At the end of the practice:
 - a. Was the datum point photographed by both the O-1 and O-2 cameras?
 - b. Has all the exposed film been sealed in cans and are cans properly labelled? Film cans should be

marked to show the following: camera number, practice designation, time and date, course number, and station (O-1 or O-2).

CHECK LIST—GUN AND MACHINE-GUN NIGHT PRACTICES

Same as day check list except filters must be taken off of both cameras. Datum points may be photographed by using searchlights as light source.

VISUAL DETAIL

It is not purposed to discuss, in detail, the various types of equipment that may be available for visual details. The treatment of the actual set-up will be general and will apply to any equipment.

In forming the visual detail it should be realized that every part of the data normally furnished by the camera detail for gun and machine-gun practices is to be duplicated but the two details are to operate independently. Remembering this and considering the required data, let us go through each step for the build-up of the visual detail.

The first items required for gun and machine-gun practices are the target positions. Two tracking telescopes with azimuth circles and elevation scales will provide the necessary elements for target position determination. These telescopes should be placed at each end of the camera base line.

Our next requirement for gun practices is the locations of the various bursts with respect to the target positions at the time of bursts. At the O-1 station it is necessary to obtain rights and lefts and aboves and belows in mils. At the O-2 station we must obtain overs and shorts. As it is impracticable for one man to spot in two directions it is necessary that three separate telescopes with suitable mil scales be provided for the determination of the required deviations.

The next element that must be considered is time. Visual target position readings must be so synchronized that they can be compared with camera position readings. It is not practicable for the visual detail to use the camera time interval device. The details must be kept complete and operate independently of each other so that a mishap to one will not affect the other. There is indicated on Figure 2 a method of setting up a time interval system for the visual detail. The TI control may be of any type that the individual officer may devise. A very satisfactory type of control is a key operated by a man equipped with a stop watch. It will also be found that an ordinary type of telephone transmitter (EE-4) will serve as the control station. With the telephone transmitter, a sharp whistle will give uniform results against a background of gun or machine-gun fire.

All the transmission of data on the schematic diagram, Figure 2, is by means of wire circuits. That is a potential source of trouble, but should prove satisfactory if the installations are carefully made. The advantage of this type of data transmission is that it eliminates the con-

fusion that usually attends voice (direct mouth to ear) transmission. It also prevents recorders from asking for repeats which would disrupt the orderly operation of the section. The distance from the recording table to the station should be at least fifty feet and the connecting wires should be well out of the way of all personnel.

Right and left spotting data can be given orally or by telephone. At the O-2 station there should be less interference than at O-1 and oral means of transmission may prove satisfactory.

The transmitters and receivers indicated on Figure 2 are EE-70 type. Other types may be found to work satisfactorily but a type that will leave the hands free is preferable.

To obtain accurate records, we must be able to determine the spots that belong to any particular burst. To accomplish this some synchronizing means must be used. Readings taken without time relation factors would be valueless. To synchronize spots with bursts it is necessary to have all the spotter recorders place their readings on a moving strip of paper, properly marked as each time interval is sounded. A rough outline of this apparatus is included in Figure 2.

It is also necessary that the "record time" of each burst be determined. A satisfactory means of accomplishing this is to place a stop watch in a wooden frame so made as to allow strips of paper to be fastened around the edge of the watch, leaving the crystal uncovered. The watch should be started with "records time." As each burst occurs a small pencil mark should be placed opposite the

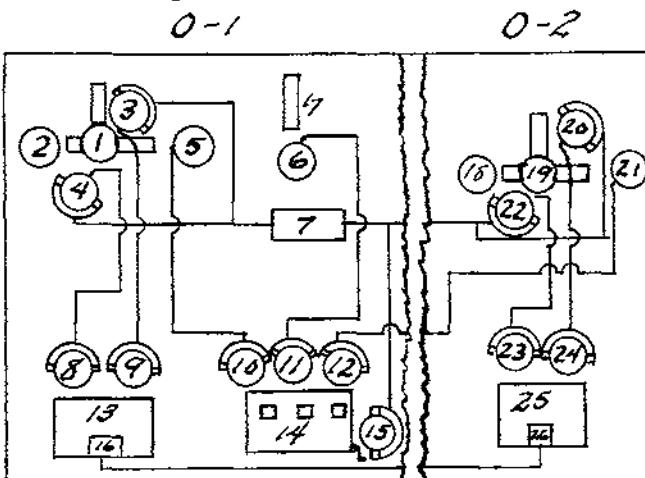


Figure 2

- 1, 19 Battery Commander's Telescope M-1.
- 2, 18 Target Tracker.
- 3, 20 Elevation Reader. (Headset from Time Interval control—transmitter to individual recorder.)
- 4, 22 Azimuth Reader. (Headset from Time Interval control—transmitter to individual recorder.)
- 5, 21 Right and Left Spotter. (Transmitter to individual recorder.)
- 6 Above and Below Spotter. (Transmitter to individual recorder.)
- 7 Time Interval control station.
- 8, 9, 10, 11, 12, 23, 24 Recorders. (Receivers from transmitters noted above.)
- 13, 25 Recorder's Table.
14. Spotting recording board. (Small squares denote moving tape, operating handle causes all tapes to move uniformly.)
- 15 Board (14) Operator. (Headset from Time Interval control.)
- 16, 26 Telephone for command and information use.

second hand of the watch. Each strip of paper must be marked so that the times indicated can be coördinated with the bursts to which they pertain.

A folder should be prepared for each course of the target practice and all records pertaining thereto should be assembled and filed in it together.

Once started, the visual detail should function automatically. This necessitates very intensive training. To insure uniform results the training should be conducted using a time interval of only three seconds. The detail having become accustomed to operating with a three-second interval will work more smoothly during practices when they work with the prescribed five-second interval. Preliminary training can be conducted using a miniature set-up with a base-line length of 50 feet and a simulated block-of-wood target running on a string. Spotters can also be trained satisfactorily by the use of some improvised set-up such as outlined on page 309 of the July-August, 1936, number of *The COAST ARTILLERY JOURNAL*.

The actual means of recording data by the visual detail has not been discussed because it is covered fully in TR 435-55, June 1, 1934. The operations of the other components of the record section are so well understood that it is not believed necessary to discuss them here.

RECORDS SECTION—ACTUAL OPERATION

An illustration giving the various required steps in the actual operation of the records section for an AA day gun practice is outlined below. Consider the batteries in position ready to fire, the records section in order, and the target coming on the first course.

The commands indicated below should be given by the officer in charge of records and the action taken is as indicated after each command.

Command—TARGET TOWED BY PLANE. REPORT WHEN ON TARGET.

The Command is repeated over the BC telephone to the O-2 visual detail.

The command is repeated to the O-2 camera by the O-1 camera operator.

The visual detail and the camera detail report to their respective chiefs of detail.

The chiefs of detail report to the officer in charge of records: "Detail on target."

Command—TRACK.

Command is repeated as above. All stations track.

O-1 and O-2 camera operators close lamp switch.

Command—STAND BY FOR TIME ZERO.

Command is repeated as above.

Command—READY-TAKE.

At the command "TAKE" the O-1 camera operator closes the signal switch. The visual detail time interval

operator starts his stop watch and sounds the first signal. The burst record watch is started. The spotting detail board operator makes his first TI mark and slowly turns the crank. All visual detail readers make their first readings and their recorders write down the readings.

Visual detail readings are repeated at five second intervals.

When the first discharge occurs, the O-1 camera operator closes the motor switch, calls "TAKE" to the O-2 operator. The O-2 operator then closes his motor switch. Both operators check to see that their motors are running.

When the last burst occurs and after approximately five seconds have elapsed the following command is given by the officer in charge of records.

Command—CEASE RECORDING.

Command is repeated as indicated in first command.

THEN

O-1 and O-2 camera operators open the *motor switches*, O-1 camera operator (*only*) opens the *signal switch*. The visual section time interval system stops. Readings and recording are discontinued. Tracking is continued by all sections. Tracking should be continuous unless there is a long delay between courses.

The above procedure should be followed for every course. The check list items should be followed between courses.

For gun night practices the procedure for operating the records section is the same as that outlined above with the exception that the night switch at the cameras should be turned on and illumination should be provided for the members of the visual section.

For machine-gun practices, the procedure outlined above can be followed with the differences that there is no spotting of bursts and the records time zero must occur about five seconds before the first discharge takes place.

The functioning of the records section for searchlight target practices is taken care of in detail in TR 435-55, June 1, 1934, and the instructions are very clear.

The records section should be built around the camera detail which is its most important component. The training of this detail should be very thorough and no item should be considered small enough to neglect. Every member of the detail should be impressed with the fact that pictures must always be secured and all exposed film recovered. With our present equipment there should be practically no occasion when a well trained record section does not get the desired pictures.

The above discussion, which is a summary of my experiences and some of the lessons learned from the conduct of a record section, is not intended to supplant the provisions of TR 435-55 but is offered only as a supplement and aid to the inexperienced in carrying out the provisions of this well-prepared publication.

TELEPHONE AMPLIFIERS

By 1st LIEUTENANT J. A. SAWYER, C.A.C.

WE HAVE shouted into tactical telephones for so many years that the possibility of perfect conversation in a low tone of voice over relatively long distance using our present equipment seems a bit nebulous. In this article are presented solutions to several of our long distance telephone problems in the Coast Artillery. Although antiaircraft problems are stressed, the principles involved apply to other situations as well.

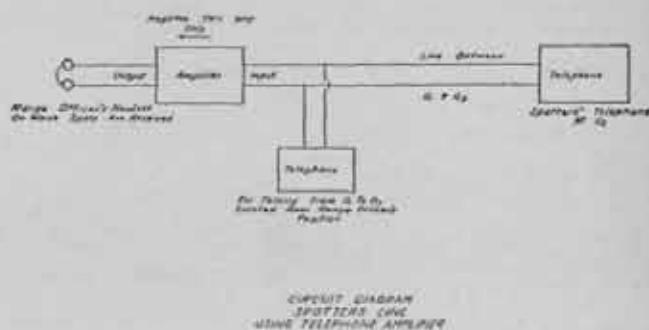
The advances in radio in the past fifteen years have made available for telephone use many contrivances of high efficiency and surprising versatility. The vacuum tube, of course, leads all the rest. It is the device *par excellence*, for it can be turned to innumerable uses, including the amplification of speech in telephone circuits. Then, too, there are new types of microphones, more efficient transformers and other pieces of equipment which, properly assembled, can be made to serve our purposes in many useful channels.

Before we go further it may be well to settle a question which may already be disturbing the reader's thoughts. A frequent argument heard against the use of these new devices is that the average enlisted man cannot be trained in a reasonable period of time to use such complicated equipment. This is not true if the equipment is properly designed. If a design is worked out which (1) makes operation simple, (2) locks the complicated elements inside a container where only trained personnel can get at them for repair, and (3) incorporates a feature for automatically eliminating the equipment from the system in which it is working when a failure occurs, without interrupting operation of the other parts of the system, then, the advantages gained with our new complicated devices can be realized using relatively untrained personnel.

At the end of this article is a detailed description ac-

companied by diagrams of a telephone amplifier which has withstood successfully a number of service tests in the past two years. Its success has created a demand for more like it which unfortunately has not been met because of lack of funds. At this point we will avoid its details but see how the amplifier described later has been used in service tests.

Our telephone troubles on spotting lines are well known. Particularly in rapid fire batteries, such as our 3-inch antiaircraft units, the noise of gun fire must be overcome by obtaining a sound level from our telephone receivers at the director which is higher than the sound level of gun fire. Otherwise the gun fire drowns out the spots from O₂ and we get only snatches of the spotting report between shots. To obtain this high sound level from telephone receivers requires perfect telephone communication on short lines using EE 5 phones and it simply cannot be had on lines of any great length using our present telephone equipment.



CIRCUIT DIAGRAM
SPOTTER'S LINE
USING TELEPHONE AMPLIFIER

FIGURE 2.

Suppose, however, that a telephone amplifier was arranged as shown in Figure 2 to provide amplified communication from the spotter to the range officer at the director. Using the volume control on the amplifier we could then obtain whatever sound level is required to overcome the sound of gun fire. Thus our spots could be received complete and without delay. Since all conversation from the range officer to the spotter is handled before or after firing, the telephone shown connected to the input of the amplifier supplies a means of talking to O₂. The hook up shown in Figure 2 was used with excellent results by Battery "B," 64th Coast Artillery (AA) in their advanced practices during March, 1936. No failures of the system occurred during five weeks of continuous use.

The same type of telephone amplifier has also been used to provide a form of two-way, amplified communication for long antiaircraft OP telephone lines. The connections shown in Figure 3 are used regularly by the 64th Coast Artillery (AA) for collecting flash information from its regimental OP's. The switch shown on

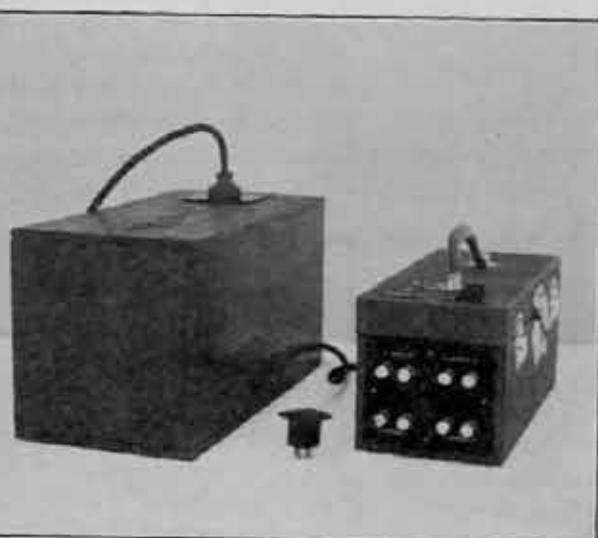


FIGURE 1. Telephone Amplifier

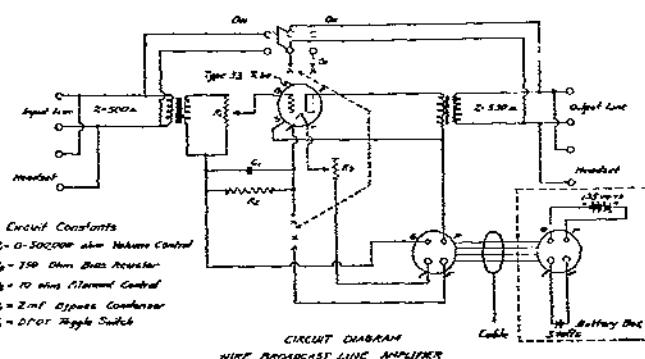


FIGURE 3.

Figure 4 below is of the toggle type and is controlled at one end of the telephone line by the operator at that end. In effect it turns the amplifier around to amplify in the direction desired. It is used on lines that are too long for adequate conversation using EE 5 telephones alone or on lines that are weak due to some elusive fault in the connections.

This type of telephone amplifier is used again as a booster amplifier at several points along a broadcast line. The amplifiers maintain an adequate volume level for one-way broadcasts of flash information over wire lines which cover distances of 200 miles or more.

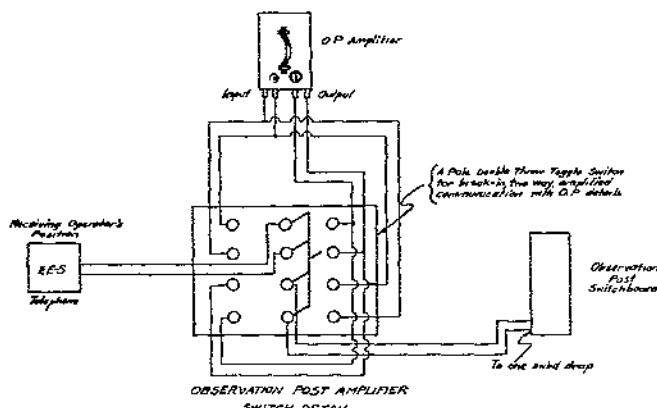


FIGURE 4.

In describing the telephone amplifier only a few comments will be made on its principal features. The impedance of the input and output transformers used should match the impedances of the circuits in which they are employed. The input transformer is a 500-ohm line to grid unit, the output transformer a plate to 500-ohm line unit. Both are now readily obtainable.

Only the controls required to operate the amplifier and the necessary input, output and monitor 'phone binding posts are outside the amplifier box. All other parts are locked inside out of the reach of persons unfamiliar with the functioning of the amplifier. The switch which turns the amplifier on and off has a double function. When turned to the "off" position it automatically bridges the line around the amplifier, thus allowing the telephone line in which the amplifier operates to continue in use without the amplifier.

Operation of the amplifier is simple. Connecting it to the proper lines, switching it on and off and adjusting the volume control constitute the essential training required of its operator. Batteries are connected to the amplifier by a cable which plugs into the side of the amplifier and the battery box in only one way. Thus connections of the batteries in the amplifier circuits cannot be made improperly by the amplifier operator. The amplifier, using B A 17 and B A 8 batteries will operate continuously for at least 100 hours without renewing the batteries. All wiring is securely soldered with resin solder, not paste solder. The latter eventually corrodes the connections.

By purchasing all parts for one of these amplifiers the cost will amount to from fifteen to twenty dollars. However, those used in the original tests by the author were made from old radio parts and scrap metal but functioned satisfactorily, nevertheless. The results are attributed to particular care in construction, wiring and soldering in order to eliminate causes of possible failure.

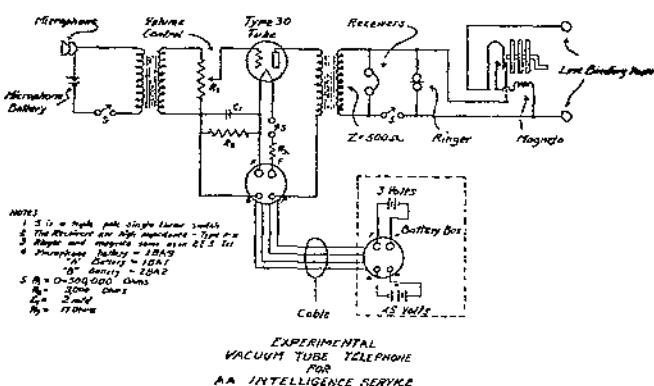


FIGURE 5.

A modification of the telephone amplifier is shown in Figure 5. The circuit diagram shows the electrical connections of an experimental telephone which furnishes the amplification of speech needed on long antiaircraft telephone lines. A model of the telephone shown has been constructed and tested as far as lack of official funds and limited facilities permit. On a line, consisting of 75 miles of cable, satisfactory communication has been obtained when conversations from an EE 5 telephone could not be understood on the same circuit. The EE 5 used is ordinarily employed as a test telephone because of its excellent operating qualities.

As the diagram on Figure 5 indicates, the ringer and magneto are the same as those used in the EE 5 telephone. These elements are sensitive enough to ring and call on long lines. Reference to this diagram will show that, when the magneto is operated, all the power developed by it goes into the line. Likewise, when another telephone rings the vacuum tube telephone all the incoming energy is used to operate the ringer.

The microphone circuit is like that of the EE 5 telephone except that a microphone-to-grid transformer replaces the usual telephone transformer. A dynamic micro-

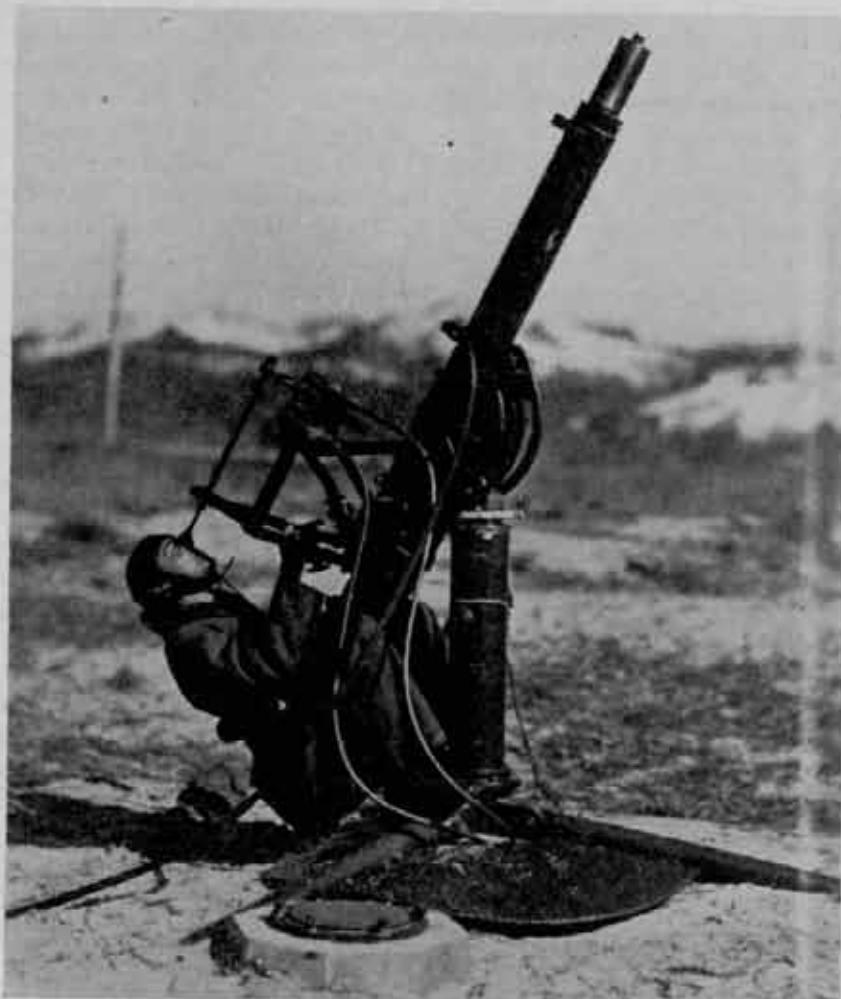
phone might well replace the single-button carbon microphone used in this experimental telephone. Much of the telephone trouble now encountered in field service is due to the poor quality output of carbon microphones. Good transmission of speech requires flat frequency response over a range of from 100 to 3,000 cycles. A dynamic microphone will cover this range. Our present carbon microphones "cut off" at about 800 or 900 cycles, causing loss and distortion of the higher voice frequencies. Aside from its excellent frequency response, ruggedness and adaptability to all climatic conditions, the dynamic microphone requires no battery as does the carbon microphone.

Between the microphone circuit and the calling-ringing circuit is the vacuum tube circuit which provides the amplified speech required. It consists essentially of a volume control, a vacuum tube of low power consumption, an output transformer and a cathode bias resistor. The last item takes the place of a "C" battery in the

circuit. Across the line side of the output transformer is connected a pair of sensitive, high-impedance ear phones. All three of the switches marked "S" are controlled by one switch handle. They are combined in a triple pole single-throw toggle switch.

Power for the vacuum tube is provided by a filament battery consisting of two BA 30 batteries in series and a plate battery of two BA 2 batteries in series. The filament battery provides 2 volts at 60 milliamperes to the tube and the plate battery 45 volts at 2 milliamperes. The batteries are shown in a battery box separate from the telephone. Since their combined size is only approximately $2\frac{1}{2}'' \times 4'' \times 7''$ they could be placed in the telephone itself with proper design.

This telephone is recommended as a basis for development of a long-distance telephone badly needed by antiaircraft batteries and intelligence agencies. It has particular application in searchlight battery circuits and flash message lines from antiaircraft OP's.



"Look Out Above!"

.50 Calibre Antiaircraft Machine Gun in Action
Note Proposed Sight and Pedestal Mount

Tactics Isn't Common Sense

By IMPERTINAX

"THERE'S nothing to tactics but using common sense."

Well, old soldiers never die, they say. And since phrases are notoriously longer-lived than their originators, presumably that one, like the babbling brook, will go on forever. Certainly, whenever and wherever tactics is mentioned, some one comes out with it. You even hear it at service schools where they should know better.

Usually the some one proceeds to prove the worth of this pearl by quoting the formula of successful generalship credited to General Nathan Bedford Forrest: "Git that fustest with the mostest." As if this second catchword proves anything except that the general probably produced it on the spur of the moment in order to silence some simpleton who plagued him with demands for the secret of his victories. Nevertheless, the listeners nod agreement and try to look wise and full of homely common sense.

Now, a good phrase is a dangerous thing. To cite but one example, "Rum, Romanism, and Rebellion" cost James G. Blaine the Presidency. The trouble is that, true or false, people tend to believe a well-turned saying, however specious. Especially is this so if it caters to vanity or purports to be the signpost of a primrose path leading to success. And, of course, using the second aphorism to bolster the first makes an appeal to both human failings at the same time.

You say to yourself: "Hell, I'm just chock-full of good, sound, ordinary sense. I'm the possessor of normal intelligence. Why should I waste my time studying, endeavoring to evolve rules for a science that has no rules?"

"Look at Forrest. He had little formal education and none military. Yet he got along. Even Jackson, Lee, Grant, and Napoleon received but a scant military education compared to mine. Obviously, the secret is common sense. Therefore, when the squeeze is put on me, I'll just dip into the old horse sense and clean up."

It sounds good, brethren. But I can't believe it. I've spent years swallowing yarns like that, but this time I pass. I won't even try to believe it.

To be sure, the illustrious gentlemen mentioned above were not educated officers after the modern fashion. But I deny that any of them, even General Forrest, lacked a higher military education. The point is, their Leavenworth and War College was that hard school whose tuition is casualty lists, lost battles, and the fate of whole peoples. True, Forrest had no military background; but he had what was infinitely better—an alert brain. He

learned fast. Long before the Civil War ended he had mastered the principles of his own peculiar brand of warfare and constantly applied them.

It is ridiculous to say the solution of a tactical problem is a matter of common sense. Regard the other four of our list. "Mad Tom" Jackson rode against the foe with a Bible, Napoleon's Maxims, and a sack of lemons jostling each other in his saddlebags. In his fanatic heart reigned an iron God. His stern, grey eyes perceived every enemy weakness and refused any human weakness to his men. In his brilliant, dour mind revolved the plans that changed "Mad Tom" to "Stonewall." Do you name Lee the apostle of common sense? The gambles he accepted, the plans he conceived, would never even have occurred to a general of common sense, but only to one of uncommon sense. Yet Lee was a fine tactician; his battles were the bulwark of one nation and almost the bane of another. Then Grant is your man! "I'll fight it out on this line if it takes all summer!" So stuffed with common sense was Grant that he was a middle-aged failure until the Civil War brought problems that demanded an unusual mind to solve. Napoleon? The man who had faith in his star. The man who dreamed of condensing Europe into an empire. The man who married a Josephine (perhaps it is unfair to refer to affairs of heart in a discussion of this sort) and divorced her to establish a dynasty. The general who confounded his common-sense opponents. Napoleon's intellect bore the same relation to common sense that an eagle bears to an ant: namely, they are not even the same species.

To carry this further, Field Service Regulations, U. S. Army, 1923, contains military principles derived from experience just as are an actuary's tables of mortality. Both eliminate the errors of common sense. They are mathematically true over a period of time. Does your common sense tell you that "A strategically defensive mission is frequently most effectively executed through offensive action?" Does your common sense tell you that the safest place you can be is your home? Any insurance company can prove by figures that the contrary is true.

Let us, then, quit classing as a basic ingredient of tactical ability the type of intelligence that tells you to come in out of the rain. Let us admit that a high, even an unusual, order of intelligence is a requisite. At the same time we should remember that the ability to think straight and to the point requires exercise. Intellect grows.

We should stop doping ourselves with, "There's nothing to tactics but using common sense." Instead, our young officers should be told:

"Tactical ability is founded upon a clear understanding of tactical principles. It requires high intelligence and hard study to gain that understanding to the degree necessary in modern warfare. Even then, please understand, you won't be a Napoleon. But you will be an asset to your country."

People tend to believe a well-turned saying, however specious.

COAST ARTILLERY ACTIVITIES

OFFICE OF CHIEF OF COAST ARTILLERY

Chief of Coast Artillery
MAJOR GENERAL A. H. SUNDERLAND

Executive
COLONEL JOSEPH A. GREEN

Personnel Section
MAJOR CLARE H. ARMSTRONG

Materiel and Finance Section
MAJOR C. W. BUNDY
MAJOR H. B. HOLMES, JR.
MAJOR S. L. McCROSKEY

Organization and Training Section
LIEUT. COL. C. M. S. SKENE
MAJOR AARON BRADSHAW, JR.
MAJOR W. H. WARREN

Plans and Projects Section
LIEUT. COL. JOHN L. HOMER

Fort Monroe News Letter

BRIGADIER GENERAL JOHN W. GULICK, U.S. Army, Commanding

COLONEL HORACE F. SPURGIN
Commanding Harbor Defenses of Chesapeake Bay and 2d C.A.

LIEUTENANT COLONEL EUGENE B. WALKER
Commanding 51st C.A.

LIEUTENANT COLONEL FREDERIC A. PRICE
Commanding 52d C.A.

By Major Oliver B. Bucher and 2d Lieutenant H. Bennett Whipple

THROUGHOUT March and April, Fort Monroe witnessed much activity. Reviews, ceremonies, inspections and practice marches appeared at the turn of every corner. Each organization turned out at least once for an inspection by the post commander, and the troops were turned out for Army Day; again for a Congressional party on April 24th and 25th; and still again for Major General A. J. Bowley, Third Corps Area Commander on April 29th.

ARMY DAY

Army Day hundreds of our civilian neighbors from the lower peninsula visited the post to view the various exhibits and ceremonies. The barracks of "A" and "B," 51st C.A. were thrown open and numerous visitors discovered the proper method of housekeeping while touring the immaculate mess-halls and kitchens. The tractors of Battery "B," 51st C.A. towed their 155's to a position on Fenwick Road near the Chamberlin Hotel and placed their guns in firing position before the assembled guests of the post. The soldiers were kept busy answering questions and demonstrating the action of the matériel. Many of the guests visited the classrooms of the Enlisted Specialists' Section of the Coast Artillery School during the afternoon. The grand finale of the program was staged at 4:30 P.M. when the 52d C.A. under the command of Lieut. Colonel F. A. Price presented a battalion parade on the lawn near

the bandstand at the water front. The visitors crowded the streets and the balconies of the Hotel.

In addition to the Fort Monroe program a detachment of troops from the 2d C.A. under the command of 2d Lieutenant J. B. Morgan, participated in Army Day at Richmond, Va. Antiaircraft guns, searchlights and machine guns, together with planes from Langley Field, put on a spectacular demonstration for the people of the capital city of Virginia.

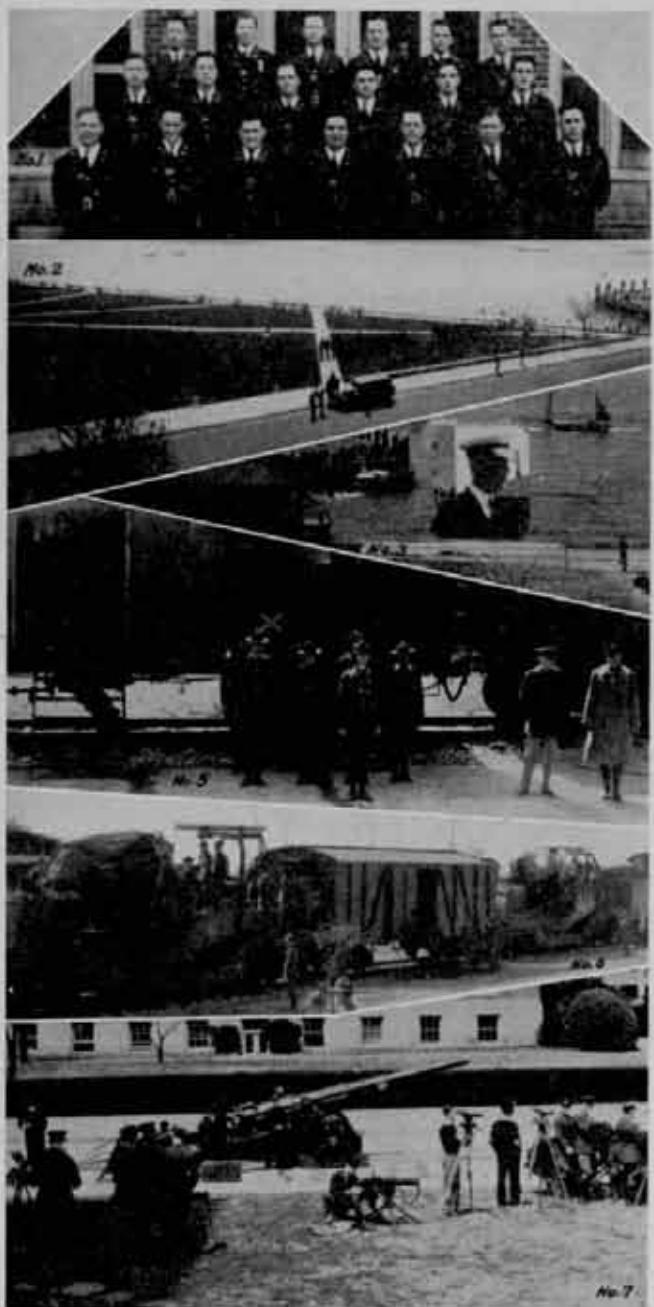
REVIEWS AND INSPECTION

On April 3d the 51st Coast Artillery appeared before the reviewing stand, ready for the field, with tractors, guns and equipment, and were reviewed by Colonel Spurgin, harbor defense commander.

On April 10th General Gulick and Colonel Spurgin inspected (in movement on the Fort Monroe Railroad) the 52d C.A. with its railway guns, ammunition cars, plotting cars and all the other necessary equipment prepared for field service.

Second Lieut. R. H. Kessler, mine planter officer, commanded the Fort Monroe "Navy" in review on April 17th. The review was preceded by an inspection of the vessels while at the mine dock.

Two members of the Third Corps Area Staff, Colonel L. A. Kunzig, G-3, and Colonel Clifford Bluemel, G-4, made their annual training and administrative inspections



Fort Monroe Activities

1. Reserve Second Lieutenants at Monroe. Top, left—Butler, Robson, Schaller, Thompson, Moomaw, McBurney; 2d row, left—Wolff, Burton, Davis, Kaufman, Ripley, Killilae; lower, left—Harrison, Baker, Dunnigan, Frabotta, Cargill, Garner, and Birch.

2, 3 and 4—Admiral Frank H. Brumby, Commandant 5th Naval District visits Monroe.

5 and 6—General Gulick and Colonel Spurgin inspect 52d Railway outfit.

7. Army Day before the crowds arrived.

at Fort Monroe and at Fort Story on April 20th and 21st.

General Gulick made an official call on Rear Admiral Frank H. Brumby, Commandant of Naval District and the Naval Operating Base at Norfolk, Virginia on April 21st. The following day Admiral Brumby landed at Old Point to return the call. The 51st C.A. under Lieut. Colonel E. B. Walker formed the escort of honor.

The corps area commander, Major General A. J. Bowley arriving at Fort Monroe on April 29th, was met at the

water front by an escort of honor commanded by Major Paul H. French, 2d C.A. General Bowley then proceeded on his annual inspection of the post.

CONGRESSIONAL VISIT

On April 24th Vice President Garner and a Congressional party of some two hundred members, including thirty Senators and fifty Representatives, arrived at Fort Monroe, aboard a chartered steamer, to make a two-day tour of the Peninsula. An escort of honor from the 51st C.A., commanded by Major O. B. Bucher, was drawn up on the lawn across from the Chamberlin Hotel to welcome the distinguished guests. General Gulick met the Vice President and his party at the wharf and accompanied them to the escort. The group strolled into the Hotel for a much needed breakfast as the last rounds of the nineteen gun salute was fired. After inspecting the 52d C.A. railway train and making a hurried trip around the post the group departed in some sixty automobiles to witness a bombing demonstration at Langley Field.

A group consisting of Senators Austin, Minton and Schwartz; Representatives Hill and Costello and the Governor of Nevada, left the main party at Langley Field and with General Gulick departed for Fort Story where they were met by a group with Colonel Spurgin including Representatives Snyder and Terry and Colonel Adm. Chaffee, General Staff, all of whom had flown down from Washington. The entire party witnessed an antiaircraft demonstration by "C" Battery, 2d C.A. The machine gunning was excellent and the last shot of the 3-inch guns cut down the target; so the Congressmen interested in military affairs and military appropriations departed well satisfied with the demonstration.

MISCELLANEOUS NOTES

Other than inspections and ceremonies there have been few activities at Monroe. From April 3d to 20th the Reserve officers on one-year active duty took written examinations for appointment in the Regular Army. Second Lieut. J. C. Moore, took a detail and two searchlights to Baltimore on April 2d to 7th to stand guard at the gates of the Baltimore National Home Show. Noncommissioned Staff Officers A. P. Diehl, L. A. Borden, J. P. Immel, E. S. Turner, W. S. Bunker, W. C. George and W. E. Frishbe all of Fort Monroe were sworn in as warrant officers on March 1st. The Fort Monroe Provisional Regiment commanded by Colonel H. F. Spurgin was called out in full pack with instructions to be ready for the field. At the Mill Creek Gate, General Gulick issued instructions for a several hour practice march over a designated route. Early in April the antiaircraft organization of the 2d C.A. moved to Fort Story to undertake the spring antiaircraft training. The 51st and 52d C.A. moved to Story during the early days of May. The student officers of the Coast Artillery School went to Story on April 26th. Summer camps open on June 18th with the arrival of the ROTC. The West Point Cadets arrive on August 14th and leave on the 21st.



Congressional Visit

1. Vice President Garner greeted by General John W. Gulick.
2 and 3—Senator Jos. Robinson, Mr. Raymond Bottom, General Gulick and the Vice President waiting the arrival of the 52d Railway train.

4. Mr. Garner climbs aboard a Railway Plotting Car.

5. Left to right—Representatives Scrugham, Snyder, Terry and Hill, and General Gulick observing 3-inch A.A. firing at Fort Story.

6. Left to right—Senator Austin, Representatives Costello and Hill, Senator Minton, Johnny Minton, Representative Snyder, General Gulick, and Colonel Adna Chaffee. W.D.G.S. snapped as first burst of A.A. machine guns was fired.

7. Senator Warren R. Austin of the Military Affairs Committee at Fort Story.

8. Representative Hill, Chairman, sub-committee on Military Appropriations is shown railway gun by Lt. Colonel Price.

ATHLETICS

April has been a fortunate month for Monroe athletics. After the basketball season in which the post won the Monroe circuit championship but lost the Southern District championship to Fort Belvoir, interest centered on boxing. Three benefit boxing shows were staged in the Central Garage Arena at Fort Monroe. The cards for these smokers were made up of fighters from Fort Monroe, Langley Field, and occasionally a few from nearby towns. The match-making was directed by Staff Sgt. "Speedy" Lawrence; the actual training of the team by Cpl. Manuel P. Orthys. Judging by the crowds there was no doubt of the interest and thrills in every fight.

During the three weeks following the last show, the team settled down to training in real earnest for the corps area championship bouts to be held at the Quartermaster Depot, Camp Holabird, Maryland. Fort Monroe proved to be the dark horse. After the first night of preliminaries, the horse was darker. Only one of the three Fort Monroe fighters on the card that night remained in the running. However, the second night, Tuesday, March 30th, told a much different story. All five of Monroe's entries won, three by knockouts. In the finals, held at Carlin's Park, Baltimore, April 1st, Fort Monroe won two championships: Alton Forbes in the 145 pound class, and C. N. Tomalunas in the 135 pound class. Final score: Fort Monroe, 17; nearest rival, Fort Meade, 14. 2nd Lieut. C. F. Cordes and his boxers returned triumphantly to Monroe.

Due to the movement of troops to Fort Story for the annual spring training exercises, the baseball season will be slow in starting. Only inter-battery practice games will be played prior to the middle of June.

ARRIVALS, DEPARTURES, BIRTHS, MARRIAGES

Second Lieutenant and Mrs. W. S. Blair moved to Fort Story on March 22d. Lieut. Blair replaces Lieut. H. J. Harrison who leaves for the Philippines on the nineteenth of May with the following second lieutenants and their wives: J. C. Moore, C. E. Spann, C. F. Cordes and C. W. Hildebrandt. The Hildebrandts were married at West Point on March 6th and had planned to leave on March 18th for the Philippines. As events turned out the bride and groom returned to Fort Monroe, set up housekeeping

for a few weeks while awaiting the May 19th transport. Second Lieut. and Mrs. E. H. Walter departed for Hawaii on the April transport.

On April 21st Captain and Mrs. M. W. Tracy returned to Fort Monroe after an extended leave of absence.

The following officers are under orders to report to the harbor defenses during the next few months: To the 2d C.A., Colonel Frederick H. Smith and Major Lloyd W. Goeppert; to the 51st C.A., Major Creighton Kerr, Captain Edgar Ward; to the 52d C.A., 1st Lieut. R. L. Williams; to the station hospital, Lieut. Colonel John B. Anderson and Captain Daniel J. Waligara.

The garrison has recently heard the good news that Lieut. Colonel and Mrs. Frank S. Clark are to return on July 1st after a C.C.C. detail in Pittsburgh. Colonel Clark this time, will be on duty at the Coast Artillery School. Lieut. Colonel L. B. Weeks is under orders to arrive at Fort Monroe on about July 1st; it is understood, however, that Colonel Weeks will replace Colonel Clark on the C.C.C. detail at Pittsburgh.

Incoming officers should beware of the old 100 building. Within the last few months the number of occupants of that building has been increased by six. And not because of incoming families!

1. Lieutenant and Mrs. L. M. Cron announced the arrival of Peyton Craighill.
2. Lieutenant and Mrs. R. K. Kauffman announce the arrival of Lauretra Jeannette.
3. Lieutenant and Mrs. H. B. Whipple announce the arrival of Sandra Kay.
4. Lieutenant and Mrs. P. F. Passatella announce the arrival of Junior.

5. Lieutenant and Mrs. E. W. Hiddleston announce the arrival of Eugene William, Jr.

6. Lieutenant and Mrs. N. B. Wilson announce the arrival of Daniel Hunter.

At Fort Monroe, excluding the 100 building, there were only two additions:

1. Captain and Mrs. E. C. Engelhart announce the arrival of Karen Carol.
2. Lieutenant and Mrs. C. J. Odenweller announce the arrival of Mr. Odenweller, III.

Will the incoming officers uphold the record of the present 100 Club?

A GENERAL-IN-CHIEF should ask himself frequently in the day, "What should I do if the enemy's army appeared now on my front, or on my right, or on my left?" If he have any difficulty in answering these questions, his position is bad, and he should seek to remedy it.—NAPOLEON.

Hawaiian Separate Coast Artillery Brigade News Letter

BRIGADE COMMANDER, BRIGADIER GENERAL JAMES A. WOODRUFF

CHIEF OF STAFF, COLONEL BENJAMIN H. L. WILLIAMS, C.A.C.

S-1, LIEUTENANT COLONEL E. C. DESOBRY, A.G.D.
S-2, MAJOR JOHN T. LEWIS, C.A.C.

S-3, LIEUTENANT COLONEL RALPH E. HAINES, C.A.C.
S-4, LIEUTENANT COLONEL J. P. SMITH, C.A.C.

LIEUTENANT COLONEL HENRY C. DAVIS, JR., C.A.C.

Com. and Engineer Officer

Sixty-fourth Coast Artillery (AA)

COLONEL RALPH M. MITCHELL
64th C.A. (AA)

Harbor Defenses of Pearl Harbor

COLONEL EARL BISCOE
15th C.A.

Harbor Defenses of Honolulu

COLONEL G. A. WILDRICK
16th C.A.

By Lieutenant John J. Stark, A.D.C.

WAR IN HAWAII

THIS is the busiest season of the year over here in the Hawaiian Separate Coast Artillery Brigade, with the annual maneuvers and championship boxing and basketball all coming in rapid succession.

First came a "dry run" for the big April maneuvers—a command post exercise with all the Hawaiian Separate Coast Artillery Brigade units going full tilt for a two-day period. This served to oil up the machinery for the feature clash with the United States Fleet the latter part of April. The two weeks leading up to this attack were spent in extensive field exercises, and the whole period comprised the most comprehensive Hawaiian Department maneuvers held to date.

General Woodruff, with his staff, made his annual tactical inspection while the troops were in the field during this period, and the brigade came through with flying colors. As this is being written, the whole downtown section of Honolulu is over-run with coast artillery, infantry, field artillery, engineer and tank outfits. It makes a picture seldom seen since the World War.

H.S.C.A.B. IN ARMY DAY

On Army Day, the Hawaiian Separate Coast Artillery Brigade put on a fine display at the Governor's palace grounds. From the 64th Coast Artillery (AA) Regiment at Fort Shafter was sent a complete set of modern antiaircraft matériel, together with men who explained the various items to the throngs of visitors who viewed the exhibit. From Fort Ruger came a complete GPF set-up, with gun, tractor and plotting car, all displayed for the benefit of the civilian populace.

As a special feature, the large cross on top of Punch Bowl was illuminated by a searchlight from the 16th Coast Artillery at Fort DeRussy during the Easter Week celebration. It has become an annual custom for the Hawaiian Separate Coast Artillery Brigade to furnish illumination for this striking exhibit.

TARGET PRACTICE

Before the war games began, many outfits managed to

complete their annual target practices. These are listed below:

Organization	Armament	Score	Battery Commander
A 55th	GPF's	175.1	Captain F. F. Scheiffler.
B 55th	GPF's	146.5	Captain George M. Badger.
C 55th	GPF's	118.6	Captain Joe F. Simmons.
D 55th (1918) AA	Add. Assgn't.	40.1	Captain John H. Pitzer.
E 55th	Add. AA	75.7	Captain Carl F. Tischbein.
F 55th	Add. AA	59.1	Captain F. R. Keeler.
C 16th	Add. AA	75.8	Captain Ben E. Cordell.

BOXING AND BASKETBALL

In our last month's athletic forecast we mentioned the Fort Kamehameha basketball team as the possible Honolulu sector champions. They fulfilled our prediction by completing the entire sector season without a single defeat. During the 1937 campaign the Fort Kamehameha basketeers won 14 games in a row to bring their successive victories to the grand total of 30 games. Lieutenant Theodore Dayharsh's Fort Kam quintet came within an ace of taking the Hawaiian Department championships at Schofield Barracks, but the Third Engineers proved a little too strong and defeated the Fort Kam athletes two in a row. Both were close games.



Easter Cross atop Punch Bowl, Honolulu, H. T.

Illuminated by Battery D, 16th C.A., Fort DeRussy. (The Cross is about 25 feet high and is reflected on the clouds)



Fort Shafter (64th C.A. (AA)) Boxing Team. 1937 Sector Champions. Lieutenant George R. Carey (left), in charge.

Lieutenant George R. Carey again presented a group of well trained boxers from Fort Shafter to annex the sector boxing championship for the current season. The Fort Shafter squad won over Fort Kamehameha by a very slim margin, which will indicate the type of competition presented. Captain William H. Dunham, coach of the Fort Kamehameha leather tossers, made a very commendable showing in his first year as boxing officer at that post. Lieutenants Wilford E. Voehl and Kermit Schweidel, in charge of the small Harbor Defenses of Honolulu squad, contributed three champions to the sector though they ended in third place.

The runners-up and the champions in the sector were given an opportunity to display their wares against the finest boxers from Schofield Barracks. There were two separate nights of boxing in the big bowl at Schofield—April the 7th and the 9th. The arena was filled to capacity both nights of the bouts.

The men to bring home victories in the runner-up class on April 7th were: Alfred Moquin, junior lightweight from Fort Kam; Don Rogers, lightweight, Fort Shafter; and James Dowling, a newcomer in the heavyweight class, from the M.P. Company, Department Headquarters.

The final championship bouts on April the 9th, found

Cornelius Smith, bantamweight and sector boxing sensation of the year, winning the department title in his division. Smith hails from the Fort Shafter camp. Walter Strappel, junior welterweight from Fort Shafter, won the department title in his classification.

Now that boxing and basketball are past history, we are looking forward to see just what baseball and track have in store for us in the way of new thrills and records. The results, and keen interest shown in inter-battery baseball at the various posts is a strong indication of some great games coming up this season. The men are in training for the track and field events, and we expect new records in the 1937 meets.

MALIHINIS (NEWCOMERS)

Since our last news letter, only two new officers have come to the Brigade. They are Lieut. Maxwell M. Kallman and Lieutenant Frank H. Shepardson, who have been assigned to Batteries G and B, respectively, of the 64th Coast Artillery (AA). We are looking forward to a large group of new officers to come over this summer, and, of course, there will be many going back. The latest tally gives 25 officers leaving and 17 officers coming in during the next few months. This is the fastest turn-over in years. ALOHA.

VIRILE, HARDY MEN resent the intervention in their affairs of soft-muscled peddlers of platitudes. So do nations bold in light esteem the advice of governments which lack the material power to make their words stand up.—ANONYMOUS.

Corregidor News Letter

BRIGADIER GENERAL P. P. BISHOP, Commanding

COLONEL T. A. TERRY, C.A.C., Executive

39th Coast Artillery

LIEUTENANT COLONEL R. A. TURNER

60th Coast Artillery

LIEUTENANT COLONEL FRANKLIN KEMBLE

91st Coast Artillery (PS)

COLONEL J. H. CUNNINGHAM

92d Coast Artillery (PS)

LIEUTENANT COLONEL ALBERT H. WARREN

By Lieutenant Colonel Oscar C. Warner, C.A.C.

FEBRUARY and March were unusually cool and breezy. A little rain fell in February. These months are the busiest of the year. Both seacoast and antiaircraft gun target practices were completed. Nine seacoast practices at the spray target towed at 24 MPH by Navy destroyers were held. Six destroyers, one a week came to Corregidor Bay for a 3-, 4- or 5-day stay depending on the tow-target missions required. The cooperation given by the Navy was splendid and the command heartily thanks the Asiatic Fleet for it.

MINOR JOINT ARMY AND NAVY EXERCISE

The annual two weeks of field training was held from March 15th to March 27th, inclusive. The first week was used for preliminary training in testing out War plans. During the second week a Minor Joint Army and Navy Exercise was held at the Harbor Defense of Manila Bay with all the harbor defense troops, and two submarines as inshore patrol, participating on the Blue side, and five destroyers with several Army Air Corps airplanes participating on the Black side. The Black forces were handicapped during night operations by the brilliant moonlight which prevailed during the greater part of the 72 hours of the exercise period. Night attacks had to be made at about 4:30 A.M. after the moon set. In fixing a date for joint exercises many months in advance, a period when the entire night is dark should be chosen. There was little discussion over whether or not the runby was successfully repulsed. The U. S. Navy agrees with us that Corregidor is impregnable and came in close to give our gun crews a workout. The exercise was very satisfactory to all concerned except possibly to a few enlisted men who rammed the dummy projectiles at 4:30 A.M. after a wakeful night.

TACTICAL INSPECTIONS

Major General Holbrook accompanied by his chief of staff, Colonel Briggs, made two visits to the defenses; one in February when a brigade review was held and the outposts visited; the other during the Army and Navy exercise, when the commanding general set his alarm clock for 3:30 A.M. so as to see the runby. Brigadier General Bishop completed his tactical inspection during the field training period. He considers the command well prepared for its war missions.

VISIT OF ACTING HIGH COMMISSIONER

J. Weldon Jones, acting high commissioner to the Philippine Commonwealth made an official visit to the defenses on March 13. The usual escort of honor was

turned out and the high commissioner reviewed the brigade.

VISIT OF COMMANDER-IN-CHIEF, ASIATIC FLEET AND COMMANDANT, 16TH NAVAL DISTRICT

Admiral Yarnell, U. S. Navy, Commander-in-Chief, Asiatic Fleet visited Corregidor and Fort Drum on March 5th. A brigade review was given in his honor in addition to the usual escort of honor. Admiral Meyers, Commandant, 16th Naval District visited Fort Mills on the same day; also going to Fort Drum.

ARRIVALS AND DEPARTURES

Due to arrive July 3, 1937:

Major Benjamin Bowening

Hubert A. McMorrow

James T. Campbell

Captain Harold A. Brusher

1st Lieut. Joy T. Wrean

2d Lieut. Harry J. Harrison

Clifford W. Hildebrandt

Joseph C. Moore

John B. Morgan

Cecil E. Spann

Clifford F. Cordes

Due to depart July 10, 1937:

Lieut. Colonel Oscar C. Warner

Franklin Kemble

Gooding Packard

Major Frederick W. Cook

Wilfred H. Steward



Left to right: Major General Holbrook, Commanding Philippine Department, Colonel Briggs, Chief of Staff, Colonel Terry, Executive, HD of M&S Bays, Lieut. Colonel Warner, P & T O, Lieut. Colonel English, Department Chemical Officer, Major Wm. Clark, Aide, Lieut. Colonel John H. Hood, Executive for E.B.D., Major Herzer, S-4, Captain Sherman, Asst G-3, Captain Holbrook, Aide.

Captain Russell E. Bates
 1st Lieut. Matthew K. Deichelman
 2d Lieut. Franklin Kemble, Jr.

ATHLETICS

By 2d Lieut. E. W. Moore, Assistant Recreation Officer

At the present time, baseball is very much in the spotlight of Athletic Interest. Three lively inter-battery leagues have just been completed with Headquarters Battery, 59th Coast Artillery, Battery D, 60th Coast Artillery, and Battery G, 91st Coast Artillery (PS), winning in their respective regiments. All three of these teams finished their inter-battery schedules without losing a game. In the American play-off Headquarters Battery, 59th Coast Artillery, won over Battery D, 60th Coast Artillery by taking the last two games in a three game series. Excellent performances were turned in by both pitchers; Ingle of the 59th and Fennimore of the 60th. The post regimental series begins within the next two weeks followed immediately by the department tournament in Manila. Both the 59th and 60th look good this year, and we are certain that one of these teams will win the Department Cup.

Softball is beginning to gain interest on Corregidor especially among the officers. During the war condition period softball afforded much needed exercise for the whole garrison. In one game of note the officers of the 91st and 92d combined to defeat the officers of the 59th and 60th 6 to 5. A picked team of officers has had great luck so far against all comers in seven games. Leagues for officers and enlisted men are being formed to run through until the rains commence when everybody moves inside for bowling and badminton.

FIFTY-NINTH COAST ARTILLERY

By Major E. R. Barrows

During February, Batteries A, B, D, and G, fired their record service practices. Batteries A, B, and D fired at high speed targets and Battery G, the only mortar battery of the 59th Coast Artillery, fired at a slow speed target. The average speed of the high speed target was approximately 22 knots, the target being one of the new spray type, towed by a destroyer. The slow-speed target was of the old pyramidal type towed at a speed of approximately four knots. All four batteries with the exception of Battery A were able to outdo their respective scores of the previous year, Battery G making a most creditable showing with a score of 100.6 with the 12" mortars. During the month of March Batteries C, E, and F fired their record practices at high-speed spray targets. Battery C under Lieutenant Deichelman fired the highest score made in the 59th and what is believed to be the highest in the harbor defenses, a total score of 245.1 with the 12" disappearing guns. Both Batteries C and E were scheduled to fire antiaircraft practices during the month of February but due to sudden dangers developed during the preliminary practices the record practices were cancelled.

Following is a complete list of scores made in the 59th Coast Artillery.

Battery	Score
A	36.2
B	203.7
C	245.1
D	141.6
E	159.0
F	126.9
G	100.6

On March 8th, 11th, and 14th, Headquarters Battery of the 59th Coast Artillery, met Battery D of the 60th in the play-off for the baseball championship of the American troops. These two teams won the privilege of playing for the championship by defeating the teams of their respective regiments. In the play-off Headquarters Battery won the decision by winning the second and third games of the series by wide margins—the final score: Headquarters Battery—9, D Battery—1. At the present time the regimental team is being formed and has commenced practice in preparation for the play-offs in Manila for the Philippine Department championship which takes place in the early part of May. Prospects look very bright for a championship team which may duplicate its fine performance of last year.

On February the 16th at a regimental party at Colonel Bunker's quarters two baby cups were presented to the recent additions to the regimental family; Lockwood Carlisle Williams, son of Lieutenant and Mrs. R. L. Williams, and Margaret Elaine Patterson, daughter of Lieutenant and Mrs. C. G. Patterson.

On Friday the 26th of February the officers and ladies of the regiment joined in a Dutch Treat beach party at the Beach Club. The new officers who arrived on February 25th were welcomed to the regiment at this party, and those officers leaving the regiment on the March boat were given a fond farewell and wishes for a bon voyage.

On March 29, 1937 a final farewell party was given in honor of Colonel and Mrs. Bunker who will leave early in April. All members of the regiment attended the party and many of them attended the parade in the afternoon, also a parting gesture on the part of the regiment. The regiment will indeed miss the presence of Colonel and Mrs. Bunker, and one and all wish them a bon voyage.

Lieutenant and Mrs. R. L. Williams, Lieutenant and Mrs. C. G. Patterson, and Lieutenant L. K. Beazley have sailed for foreign ports and thence home to the States via the March transport. Colonel and Mrs. Bunker will sail for China on April 5th and thence home to the States via May transport.

SIXTIETH COAST ARTILLERY

By Captain W. L. Richardson, Adjutant

Batteries B, C and D completed their 1937 3-inch anti-aircraft practices the latter part of February with uniformly excellent results. About 20% hits were secured at targets at slant ranges around 6,000 yards. Maneuvers

while the target was under fire were executed with the aid of excellent radiophone communication between the safety tower and the pilot of the towing plane.

The regiment participated actively in the joint Harbor Defense-Navy-Air Corps exercises, the latter part of March. Very few observation airplanes and no bombers penetrated the defenses without being discovered and fired on well before they could accomplish their mission, in spite of the fact that these air raids came without any advance notice and at all hours of the day and night for a period of two weeks.

Colonel Allen Kimberly turned over command of the 60th to Lieut. Colonel Franklin Kemble and departed for Fort Crockett on the March boat. Colonel Kemble left for home via Baguio and China in April, Colonel J. H. Cunningham taking over the 60th.

NINETY-FIRST COAST ARTILLERY (PS)

By Captain S. H. Morrow, Adjutant

Artillery.

The artillery is completed with the exception of mine practices by the two mine batteries, A and G, commanded respectively by First Lieutenants Marion G. Pohl and Richard L. Matteson. The mine work has been delayed due to the USAMP *Harrison* having been in dry dock for repairs. All is now functioning merrily and the mine commander, Lieut. Colonel Gooding Packard, is having a difficult time to find enough whisky bottles to keep up the submarine work. Mine service practices are scheduled for the second week in April so any offered from the States will arrive too late.

War Condition Period.

Quite a humane war, from the viewpoint of the participants, has just been completed. We even had an armistice. Peace was declared after the Navy made (or attempted) a runby. The critique hasn't been held yet so it cannot be stated who won. Anyhow, it was a humane war.

Athletics.

Battery G won the inter Battery baseball series without losing a game. Sergeant Bertulfo, pitcher, age 42, was as usual the deciding factor. Batteries B and E were stronger on paper but Bertulfo was always listed as "winning pitcher" in spite of hopes to the contrary.

We had another boxing meet with the 92d but this time will let the 92d tell about it since they trimmed us badly.

Personnel.

Lieut. Colonel Packard is leaving for two months terminal leave in China on the May 8th transport; Major Goeppert and 1st Lieut. A. Roth are now there on terminal leave; 1st Lieutenants I. D. Roth and Preston Steele leave for the States on the May 8th transport; and Major F. W. Cook goes to China on terminal leave on June 8th. Captain A. B. Nicholson has been relieved from Corregidor and has gone to Stotsenburg on six months duty with the Philippine Army. Another twenty enlisted men went with him, making a total of fifty-eight noncoms and privates first class on that duty.

Arrivals on the last transport for this regiment were headed by Lieut. Colonel Richard S. Dodson, who is expected to take command of the 91st when our present commanding officer, Colonel James H. Cunningham, leaves to take command of the 60th, on or about April 15th. The two other newcomers were 2d Lieutenants R. M. Miner and N. A. Skinrood. Both have been given batteries and participated as battery commanders in the recent war.

NINETY-SECOND COAST ARTILLERY (PS)

By 1st Lieut. Wm. M. McKee, Adjutant

On February 25th Lieutenant Colonel Albert H. Warren joined the regiment and assumed command. Captain George E. Young and Lieutenant George E. Keeler, Jr., joined the regiment at the same time and are now assigned to Batteries E and F (3d (Gd) Battalion) respectively. These two officers were transferred from the 69th Coast Artillery (AA) at Fort Crockett, Texas.

Lieutenant Colonel Reinold Melberg departed on the *Grant* March 3d for China. On completion of leave in China and in France, Lieutenant Colonel Melberg will proceed to his new station at Allentown, Pa., for duty with the National Guard. He expects to reach Allentown about the first of September. 1st Lieutenant Sam C. Russell departed for leave in China on the *Empress of Russia*, March 29th. At the completion of his leave he will go to Fort Monroe as a student in the Battery Officers Course, Coast Artillery School. 1st Lieutenant Daneil M. Wilson was relieved from duty with the regiment on March 10th and assigned to duty with the Philippine Army at Fort Stotsenburg, P. I. It is expected that this detail will last for six months.

On March 8th, Battery A commanded by Lieutenant McReynolds left Fort Mills for Fort Wint which is located on Grande Island at the entrance to Subic Bay. During the remainder of the month, the battery has been engaged in preparation for firing Battery Jewell, two three-inch guns on pedestal mounts. As this battery had not been fired for sixteen years, there was a great deal of work to be done, especially in the establishment of an adequate system of fire control. The battery fired its first practice on March 29th and the second practice on April 2d. From an observer's viewpoint the first practice was excellent.

On March 11th Batteries B and D (155 mm. guns), commanded by 1st Lieutenant Sam C. Russell and Captain Douglass G. Pamplin respectively, fired service practice at a high speed target. Both practices went off smoothly and an analysis gives every indication that they will be rated as "Excellent."

Battery C commanded by Captain Marvin J. McKinney, manning 155 mm. guns, fired its annual service practice on March 25th at a high speed target. While the analysis of this practice has not been completed, the battery made a fine showing.

Panama Canal Department News Letter

Department Artillery Officer

COLONEL LEWIS TURTLE, C.A.C.

Fort Amador

COLONEL FORREST E. WILLIFORD
4th C.A. (AA)

Fort Sherman

COLONEL WILLIAM T. CARPENTER
1st C.A.

Fort Randolph

COLONEL CHARLES B. MEYER
1st C.A.

By Major Harry R. Pierce, C.A.C.



Fort Amador

THE best part of February was devoted to completion of antiaircraft practices. The dry season with its clear skies finally arrived during the last ten days of the month and Batteries A and B got off their gun practices with excellent results. Battery C (Searchlights) finished with the first record practice against 180-mile bombers. The results were nothing to brag about for score, but showed definitely that this speed must be taken into consideration in computing scores in comparison with practices using slower planes. Battery F did not compete during this period. The new system of firing has demonstrated its value and we sincerely hope the idea will be continued.

As usual March is the month for maneuvers this year. From the 13th to the 19th the Fourth had a seacoast and antiaircraft maneuver all its own, with the assistance of our harbor boats and the air corps at Albrook Field; while the Mobile Force consisting of the 33rd Infantry and the 11th Engineers played around in the interior.

On the 19th the Fourth came in from its battle positions and rested over Sunday—in preparation of a trip to the Atlantic side.

Battery G left for Fort Randolph on March 12th taking its 14" railway gun with it. After spending nearly all day conquering hot boxes and burned out bearings it finally arrived about 3:15 P.M. when it went into position.

On March 21st a Provisional Coast Artillery Brigade composed of the 1st and 4th Coast Artillery Regiments was formed, with Colonel Pearce in command, and ordered to concentrate on the Atlantic side.

A train pulled out of Fort Amador at 5:30 A.M. March 22, bearing the regiment and all its paraphernalia.

After a very successful period of de luxe drills, night and dawn attacks and all that goes with them, the regiment returned to Fort Amador on the 26th.

Although the baseball season ended just before the maneuvers we have already started our Army 1937 season, which makes baseball nearly an all-year-round event.

At this time of year, as usual there are many changes in personnel. The commanding officer, Colonel E. D'A Pearce leaves for San Francisco May 7th. Colonel Forrest E. Williford his successor, is already prepared to take

Panama Activities—The 4th Coast Artillery Goes for a Ride

Top to bottom. On the way from the Pacific side to the Atlantic; in the yards at Colon—The 1st Battalion encamped on the parade ground at Fort Randolph—Ration dump at Fort Amador during department maneuvers; everyone was placed on field rations, no savings—Believe it or not: they are beans!

over as he has been here for some months. Considering changes already made and others to be made in the next two months there has also been practically a complete turnover in the harbor defense staff.

* * *

Fort Randolph

By First Lieutenant O. H. Gilbert

DYNAMITE blasts in the coral reef on the seaward side of Fort Randolph marked the beginning of work on a swimming pool for the garrison. Natural formation of the reef is such as to lend itself to the design of the pool which will be of ample size for even a much larger command than can be stationed here. The pool will be protected on all sides from wave action by walls of broken concrete and coral. A fine sand bottom is assured and the water will be constantly changed through a shark net. This will be one of the best pools in Panama and will add materially to the enjoyment of the entire command. In addition to the pool two concrete volley ball, tennis or basketball courts are under construction in rear of barracks where they will be within easy reach.

Fort Randolph is having its first enlisted men's dance, and from all indications this will be a regular activity from now on. The dances are held in the theatre with the Fort Sherman orchestra providing the music.

Department maneuvers for the 1st Coast Artillery (AA) did not necessitate a trip to the Pacific side this year. The regiment manned its own installations for part of the maneuver and was later on augmented by the 4th Coast Artillery from Fort Amador. For a few days Fort Randolph had the pleasure of playing host to the other Coast Artillery units in Panama much to the pleasure of the garrison as a whole and the Post Exchange beer garden in particular.

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Harbor Defenses of San Francisco Notes

BRIGADIER GENERAL JOSEPH P. TRACY, the district commander, made an inspection of the Harbor Defenses of San Francisco, from March 12 to 16. The following week the corps area commander, Major General George S. Simonds, made his annual garrison and armament inspection which included a tactical problem and searchlight drill. The harbor defense received many excellent and superior ratings, and the corps area commander in his official letter stated:

The Harbor Defense Commander is commended for the proficiency exhibited by his staff and subordinate units taking part in the exercises prescribed.

The 6th Coast Artillery under the direction of the district commander with Captain C. C. Carter as liaison officer, participated in the Army Day celebration sponsored by the San Francisco Junior Chamber of Commerce. There was an elaborate schedule of colorful events witnessed by several thousand spectators. Colonel H. E. Cloke commanded the Provisional Brigade, consisting of

the 6th Coast Artillery, headed by Lieut. Colonel LaRhett L. Stuart, the 30th Infantry, and a Scout Car Platoon of the 11th Cavalry. General Tracy took the review. Occupying boxes were the Corps Area Commander and Mrs. George S. Simonds, Major General Paul B. Malone, retired, the Naval District Commander and Mrs. St. Clair Smith, Admiral and Mrs. Kempff, General and Mrs. Breckenridge, Mr. and Mrs. Lillenthal, civilian aide for CMTC, and Mr. and Mrs. Richard Law, Junior Chamber of Commerce, and other distinguished guests. Following the review the 250th Coast Artillery, California National Guard, demonstrated 155 mm. guns maneuvering and going into position; and the Scout Car Platoon, 11th Cavalry, exhibited methods of attack and withdrawal. Other events were an attack plane demonstration by the 17th Attack Group, March Field, and a flight maneuvers and review staged by the 7th Bombardment Group, Hamilton Field, California.

The celebration also included exhibits at the Palace of Fine Arts. The 6th Coast Artillery display consisted of submarine mines, battery command station and plotting room, antiaircraft gun and machine guns, sound locator, artillery ammunition, field dressing station, and soldiers' clothing and equipment. Popular with the many visitors was the planting of a miniature mine field in the lagoon in front of the Palace of Fine Arts by the members of Battery "A," under the direction of Captain R. R. Hendrix. About ten mines were fired, completely demolishing the miniature targets towed across the line of mines. A plotting board, azimuth instruments, control board, and power panel were set up and their operation explained in detail by competent personnel to the large number that gathered to watch this part of the exhibit.

Having completed an outstanding submarine mine target practice last November, Battery "A," Captain Hendrix commanding, determined to do no less with artillery. Moving from Fort Scott to Fort Barry on April 5th, the battery ten days later fired Battery Smith, 6-inch guns barbette. Firing at a range of about 11,500 yards,



Fort Scott Championship Team

From left to right, front row: Miles Micya, Irvin Kabakov, Roy H. Boroff, 1st Lt. William S. Coit, Jimmie C. Bonnot, Ralph E. Smith. Back row: Joseph R. Gosselin, Howard R. Hartman, Harvey W. Vickery, Woodrow A. Jones, Willard T. Gammons, Eli Marick, and Kenneth R. Curtis.

the battery scored 7 hits for a score of 108. The battery goes in July to San Luis Obispo to take part in the Fourth Army maneuvers and will be away for about six weeks. Captain Leo D. Vichules, 1st Lieut. E. O. Taylor, 2nd Lieut. H. P. Persons, and several Reserve officers will accompany the battery. Battery "K," under the command of Captain Dean Luce has been moved from Fort Baker to Fort Barry for the artillery training season. Target practice with Battery Wallace, 12-inch long range guns, will be conducted in May. Major Willard Irvine, 6th C.A. is the group commander for these batteries.

The extension school of the 6th Coast Artillery which has 67 Reserve officers, has completed 3,080 hours, for an average of 46.7 hours per officer. The regiment on March 31st stood second out of more than thirty units in the Ninth CA District and is only now .5 hours behind the leading unit.

The following Reserve officers on one-year active duty under the Thomason Act took the War Department examination for commissions in the Regular Army: 2nd Lieutenants J. T. McCarthy, E. L. Baughn, V. A. Gates, G. W. Griffin, Jr., and J. G. Nelson.

The barracks and quarters at Forts Scott, Baker, and Barry are being repaired and repainted, so that with the opening of the Golden Gate Bridge, connecting Fort Scott and Fort Baker, next month, these two show posts will look their best. The regiment will take part in the exercises celebrating the bridge opening on May 27th.

The tunnel connecting Fort Baker and Fort Barry, on which work has been in progress for over a year for the purpose of widening, will be completed in June. More than \$100,000 have been expended in enlarging this tunnel which has now a width of 20 feet and a length of one-half mile.

The Noncommissioned Staff Club formally opened the "Log Cabin" on March 6, 1937. Several former Commanding Officers of the Post, now retired, were present as invited guests. The completed building was personally dedicated to the use of the Noncommissioned Staff and their families by Colonel Cloke. The officers of the club are Master Sergeant A. W. Haffards, CAC, President; Master Sergeant Joseph Kramer, QMC, Vice President, and Master Sergeant S. J. Ignaschak, CAC, Secretary and Treasurer; Master Sergeants C. A. Ross, Roy Marshall and Edward Savacool constitute the Board of Governors. The club has been very active since the opening in giving card parties and dances to raise funds to properly equip the building. The Cabin is one of the show spots of the post and is located so that it has an excellent view of the New Golden Gate Bridge and inner harbor. The landscaping of the club is being done under the supervision of Master Sergeant Ignaschak.

Colonel and Mrs. H. T. Burgin are expected to arrive June 12. Colonel Burgin comes from duties as Executive, Office of the Chief of Coast Artillery and succeeds as harbor defense commander Colonel Cloke who retires May 31. Brigadier General R. S. Abernethy, Commanding General, Port of Embarkation, Fort Mason, California

was a visitor at Fort Scott and Fort Baker during the recent tactical exercises.

President Robert Gordon Sproul, University of California, has announced the award of the Ordnance Scholarship Medal to Mr. Charles D. Y. Ostrom, Junior, son of Major C. D. Y. Ostrom, General Staff (CAC), Presidio of San Francisco, California. The engagement of Miss Jane Whitesides of San Francisco to Lieutenant W. M. Kinard, Jr., CAC, has recently been announced. General Joseph P. Tracy accompanied by his executive, Colonel C. K. Wing, CAC, completed in April an inspection tour of the posts of the Ninth Coast Artillery District. Major Frank H. Hastings, CAC, now a student at the Army Industrial College, Washington, D. C., and Major Manley B. Gibson, CAC, recently on duty at Fort Mills, P. I., have been assigned to the 6th Coast Artillery. The post will lose soon four officers to the Command and General Staff School: Captains Shelton, Vandersluis, White and Pape; and three officers to the Coast Artillery School: Captain Hartman, as instructor, 1st Lts. Chapman and Coit as students.

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Fort Barrancas Notes

LIEUTENANT COLONEL G. F. HUMBERT, Commanding
By Captain M. A. Hatch

FORT BARRANCAS is participating in the corps area recruiting drive by sending canvassers to nearby towns and bringing applicants in at a rate of over 100 per month. Although most of the enlistments are for other stations our own post is now 25% overstrength.

Indications are that the coming summer training season will be a busy one. Besides the R.O.T.C. and C.M.T.C. the 206th Coast Artillery (AA) Arkansas National Guard and ten Reserve groups will train here. Most of the load will fall on the eleven officers of the 13th who will be here throughout the summer.

The motion picture theatre is progressing satisfactorily and will be in operation by the end of the fiscal year. Funds have been received for the installation of gas for cooking and heating for a large section of the post and this project should also be completed by June 30th. Another construction job to be carried out at once is a new searchlight garage.

W.P.A. workmen have been busy on a large number of repair and other projects. Many sets of quarters have been renovated and most of the buildings on the post repainted. The ancient brick buttresses in front of quarters No. 7 have been rebuilt. The railroad which parallels the main street of the post, "Slemmer Avenue," has been lowered to street level and the paving extended to include it, thereby making a real avenue out of what was formerly a narrow road. The main gate and gate guard quarters have been moved about 100 yards east to the reservation line. The capacity of the hospital has been increased by glassing in the porch.

The district commander, Colonel William Colvin, and

the corps area commander's representative, Colonel Ralph W. Glass, G.S.C., were here for several days to witness the annual seacoast service practices and to conduct their tactical inspection. Captain Granger Anderson and Captain John R. Burnett are now getting their batteries ready for the antiaircraft practices in May.

The famous Barrancas phlox are in bloom and the entire post area is now a mass of color.

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Harbor Defenses of Sandy Hook Notes

**COLONEL L. B. MAGRUDER, C.A.C., Commanding
By Lieut. Col. E. B. Dennis, C.A.C.**

DURING the period May 7-10th inclusive, troops from Fort Hancock had the sad duty of maintaining order and regulating traffic at the Naval Air Station at Lakehurst after the tragic destruction of the *Hindenburg*. Within a short time after the call for assistance came in "C" Battery, 52d Coast Artillery (Ry), Captain W. B. Merritt, commanding, with 3 other officers and 103 men, were en route to the scene of the disaster, arriving there in the early morning hours of Friday, May 7, 1937. A ring of sentries was immediately thrown around the wreck at a distance of about 100 feet from same, with a ten-yard interval between sentries. Unauthorized persons were kept at a distance.

Around the fifteen-mile stretch of the Sandy Hook beaches, the fishing season has started in earnest. Over two hundred civilians have been issued fishing passes, and many members of the garrison are devotees of rod and line. Nearly every organization on the post has its expert fishermen. Clam diggers are numerous. To date it is believed that Sergeant David Trank of the Medical Department has made the biggest haul. Big fish are much in evidence, and stories of bigger fish are numerous. The delightful fragrance of clam chowder, and broiled sea bass is most potent, and on the many recent occasions on which they have been served, the crowded mess halls give evidence of the popularity of both dishes.

On May 17th the target practice season opened up with record practice by Battery "E," 52d C.A. (Ry), Captain W. F. Putnam, Jr., commanding. Eight-inch railway rifles were used in this firing. The figure of merit has not yet been determined. Captain Putnam is scheduled to take command of Fort Tilden in the near future.

* * *

Philadelphia Chapter, U. S. Coast Artillery Association

ON May 6th the Philadelphia Chapter held its annual meeting for the election of officers for the ensuing year. The following were elected to the offices indicated:

Captain Otto W. Rust, C.A.-Res., President.
Captain George S. McKee, C.A.-Res., 1st Vice-President.
1st Lt. William J. Shea, 2d Vice-President.
1st Lt. Samuel M. Lovenstein, C.A.-Res., Secretary.

Sacramento Chapter

THE annual meeting and election of officers of the Sacramento Chapter, U. S. Coast Artillery Association, was held on March 23, 1937, and the following named officers were elected as indicated:

Captain H. H. Fisk, C.A.-Res., 604th C.A.—President.

1st Lieut. C. S. Barrese, C.A.-Res., 6th C.A.—Vice President.

Captain C. K. Curtright, C.A.-Res., 6th C.A.—Secretary-Treasurer.

Members of the Executive Council:

Captain C. K. Curtright, C.A.-Res., 6th C.A.

2d Lieut. G. R. Fay, C.A.-Res., 57th C.A.

2d Lieut. Winston McBain, C.A.-Res., 627th C.A.

Ten new associate members, recruited from the Junior R.O.T.C. at the Sacramento High School, have been received by the chapter. These boys form the best local ground for sowing the seed of the C.M.T.C., both for the Coast Artillery camp held at Fort Scott, and the other arms, the camp for which is held at the Presidio of Monterey. The Sacramento Chapter is endeavoring to make their meetings of sufficient interest to all classes of membership to sustain the interest of these boys from year to year, so that there will always be a waiting list for the Coast Artillery C.M.T.C. at Fort Scott.

Additional plans of the chapter for the coming year include: continued interest in and support of the R.O.T.C. units in Sacramento; a complete round of social affairs; a membership campaign; and last, but not least, an interesting and qualified speaker at every chapter meeting.

* * *

Washington Coast Artillery Club

MAJOR GENERAL A. H. SUNDERLAND was the honor guest at the last regular meeting of the Coast Artillery Club. The meeting was held on April 13, 1937, in the Reserve Officers' Assembly Hall in the Munitions Building. It was preceded by a very delightful dinner held in General Sunderland's honor at the Army Navy Club. General Sunderland talked on Coast Artillery progress and plans and his address was appreciated by all present.

The meeting was presided over by Major Milo H. Brinkley, the President of the Coast Artillery Club. Congressman James G. Scrugham of Nevada was present at both the dinner and the meeting.

Among others present were: Colonels James B. Bentley, Earl Thomson, and Thompson Short, Lt. Col. R. R. Hendon, Majors W. J. Dartmody, Edwin C. Jamison (QM Reserve) from the 9th Corps Area, John Caswell, N. W. Whited, and L. J. Rose.

NEWS AND COMMENT

THE UNITED STATES COAST ARTILLERY ASSOCIATION



"The purpose of the Association shall be to promote the efficiency of the Coast Artillery Corps by maintaining its standards and traditions, by disseminating professional knowledge, by inspiring greater effort towards the improvement of matériel and methods of training, and by fostering mutual understanding, respect and coöperation among all arms, branches and components of the Regular Army, National Guard, Organized Reserves and Reserve Officers' Training Corps."

OFFICERS

President

MAJOR GENERAL A. H. SUNDERLAND

Vice-President

COLONEL F. H. LINCOLN

Secretary-Treasurer

MAJOR AARON BRADSHAW, JR.

Additional Members of the Executive Council

BRIG. GEN. WILLIAM OTTMANN	LT. COL. R. S. ATWOOD
COLONEL W. S. POLLITZ	LT. COL. C. M. IRWIN
COLONEL CLIFFORD JONES	MAJOR LEROY LUTES
MAJOR JOHN CASWELL	

All-Time High

WE are especially pleased to announce that this issue of the COAST ARTILLERY JOURNAL goes to the largest number of subscribers in our history. Moreover, we expect this all-time high of over 2,600 paid-up subscribers to go even higher.

We attribute the encouraging increase to two things. First, the interest of our old subscribers who brought the JOURNAL to the attention of those Coast Artillerymen who were not on our rolls. Second, and we say this in all modesty, to the real instructional value and general interest of our magazine. This last has, in great measure, been made possible by the spirit of coöperation evinced by those who share their knowledge and ideas with the rest of us in the pages of the COAST ARTILLERY JOURNAL.

We intend to enlarge our present figure to 3,000 subscribers. The summer just ahead is the ideal time in which to achieve this result. Therefore we ask our subscribers

to individually bag one subscriber during the summer camp period. If their efforts are backed by the active support of the camp commanders we will easily reach our goal of 3,000 by early fall.

We will not, however, reach our goal unless all keep their shoulders to the wheel.

We count on you.

1 1 1

Retirement of Colonel H. E. Cloke

WE cannot let the occasion of the retirement from active service on May 31 of Colonel Harold E. Cloke, C.A.C., pass without expressing our appreciation of the support of this friend of The JOURNAL. A frequent contributor, he has recently served as Vice-President of the United States Coast Artillery Association.

Known to every Coast Artillery officer as the inventor of the Cloke Universal Plotting and Relocating Board, now standard in the service, he has held a succession of important commands which included the Harbor Defenses of Cristobal, Fort Eustis, Fort Ruger, Hawaii, the Harbor Defenses of Chesapeake Bay, and the Harbor Defenses of San Francisco where he is now stationed.



The distinguished military career of this Coast Artillery officer began at the Military Academy from which he graduated in 1897. Then followed service with a mortar battery of the 3d Coast Artillery at Fort Monroe, Virginia, promotion to captain of Volunteers and duty with the Expeditionary Force to Porto Rico under General Miles.

Colonel Cloke's specialty has been artillery—coast and antiaircraft. Ordered to Fort Baker, California, shortly after the turn of the century, to command the 61st Company he made the first 100 per cent hits with Battery Spicer, 12-inch barbette guns. This achievement was repeated at Battery Kirby using 12-inch guns on a disappearing carriage and with Battery Wagner, a 5-inch gun battery.

Colonel Cloke served with the 85th Division in France. He is the author of three books: *The Gunners Examiner*, *The Enlisted Specialist Examiner*, and *A Condensed History of the United States*, the latter having been prepared when he was Professor of Military Science and Tactics at the Massachusetts Institute of Technology.

Colonel and Mrs. Cloke plan to make their home in

San Francisco after a trip East and a summer at his cabin in the mountains near Sonora, California.

* * *

Colonel Pollitz Selected as a Member of Executive Council

THE Executive Council has selected Colonel W. S. Pollitz, 509th C.A. (AA) R.A.I. to fill the vacancy caused by the untimely death of Colonel Charles J. Mund. In the recent annual election he received the next highest number of votes to those received by Colonel Mund.

Colonel Pollitz was born in Lorraine, March 12, 1888. He attended high school and college in Berlin and began his military career on February 20, 1906, by enlisting as a private in the Washington National Guard and was promoted through the various grades. On July 26, 1917, he was commissioned Captain C.A.C. and was promoted to the grade of Major on October 26, 1918. During the war he was harbor defense ordnance officer, and fort commander at Fort Worden, Washington. Was appointed Major, C.A.-Res., July 9, 1922, Lieut. Col. October 23, 1922, and Colonel July 12, 1926.

At present Colonel Pollitz is commanding officer of the 509th C.A. (AA) R.A.I. and has proven himself to be an outstanding leader. His regiment is known favorably throughout the service because of its efficiency and the high standards that it maintains.

Colonel Pollitz is Chairman of the Legion Committee on National Defense and has been nominated for President of the Washington State Reserve Officers' Association. He is considered one of the best informed men in the Northwest in regard to coast defense installations in that section and their needs. Has been very active in regard to National Defense. The Colonel is an enthusiastic student of history. He speaks French and German fluently and has a working knowledge of Spanish and Italian. He has always been a most enthusiastic Coast Artilleryman and a strong supporter of the Association. His selection is a wise one.

* * *

Antiaircraft Equipment—the Chief of Staff

AT THE recent convention of the Adjutant Generals of the National Guard, the Chief of Staff, Major General Malin Craig, stated "There is one important matter that I hope you gentlemen will get after and that matter is a lack of antiaircraft matériel. If you are familiar with what is going on in Spain you will realize that antiaircraft is something that no one can sneeze at any more. It would take two years to get the matériel, to say nothing about the training of the men to handle it. We could not equip a regiment inside of two years if we tried and if we had the funds with which to do it."

This appeal for help to correct the deplorable conditions that exist in regard to the supply of antiaircraft matériel for one of our most important components, the National

Guard, is certainly encouraging. Our Chief of Staff realizes the importance of this situation and has given evidence of his desire to correct the condition. We all should support his effort to provide this essential equipment.

* * *

Personnel Changes—O.C.C.A.

IT is with genuine regret that we announce the relief of Colonel Henry T. Burgin, the Executive Officer, O.C. C.A., and his departure for duty at Ft. Winfield Scott. Our loss is Ft. Scott's gain. Colonel Burgin's mature judgment, active interest in the progress of The JOURNAL, his wise counsel and understanding meant much to us. We sincerely regret his departure. May this new command duty bring to him further advancement which he so justly deserves.

Colonel Burgin's successor, Colonel Joseph A. Green, is well known to all the members of our Corps. His selection as Executive Officer is certainly a wise one. He was a former editor of The COAST ARTILLERY JOURNAL and we shall look to him for constructive criticism and material help.

* * *

Antiaircraft Artillery

THE following extracts are from the military establishment appropriation bill for 1938, the hearings relative thereto, and from the press. These extracts are of special significance, for they indicate a very promising future for the antiaircraft artillery. We believe that the antiaircraft artillery has proven its worth to the country and that its future is assured.

WAR DEPARTMENT APPROPRIATION BILL 1938

Seacoast Defenses

For all expenses incident to the preparation of plans and the construction, purchase, installation, equipment, maintenance, repair, and operation of fortifications and other works of defense, and their accessories, including personal services, ammunition storage, maintenance of channels to submarine-mine wharves, purchase of lands and rights-of-way as authorized by law, and experimental, test, and development work, as follows:

United States, \$2,443,410, of which not less than \$200,000 shall be applied to the procurement of mobile antiaircraft guns and mounts;

Insular department, \$1,092,710, of which not less than 300,000 shall be applied to the procurement of mobile antiaircraft guns and mounts;

Panama Canal, \$1,467,200, of which not less than \$300,000 shall be applied to the procurement of mobile antiaircraft guns and mounts;

In all, \$5,003,320.

Modern Antiaircraft Equipment

Major General A. H. Blanding, Chief of the National Guard Bureau, stated that the item covering modern antiaircraft equipment covers the most serious deficiency that we have in our whole setup. He said further that the original estimate for this item was gotten up before he came to the Bureau and he had not had sufficient time to check

it or he would have endeavored to have a much larger amount included in the bill. He informed the Appropriations Committee that to provide the minimum training equipment, based on *only* one gun per battery and *only* one director per regiment, that it would require \$1,486,000 in addition to the \$371,600 which is included in the bill. He further stated that \$1,857,000 should be expended as quickly as possible to provide the minimum training requirements.

Motorization and Mechanization of the National Guard

General Leach said that in the light of events in Europe and at the places where there have been chances for observation, it is thought that the proper antiaircraft defense is a mobile one; and that the National Guard is better qualified to furnish antiaircraft mobile defense than any other agency of the Army. He further stated that antiaircraft regiments are woefully lacking in antiaircraft equipment and that none of the 10 National Guard regiments are fully equipped.

Weakness of the National Guard in Respect to Antiaircraft Equipment

General Johnston stated that at the same time it has been shown that one of our greatest weaknesses is a shortage of antiaircraft equipment. He said further that we have many antiaircraft regiments and are spending a lot of money to maintain them; but if they were needed tomorrow they would not be thoroughly efficient, simply for the reason that they are not properly equipped. He went on to say, "the shortage of antiaircraft equipment is serious, as I understand that it takes a long while to manufacture some of that equipment, and unless we make a beginning we are going to be, sometime, in a serious situation."

Summary of Requests of National Guard

General Reckord stated at the last National Guard convention that a resolution was passed asking for \$44,000,000 for antiaircraft equipment.

PRESS COMMENTS

The following reports of antiaircraft activities in Spain are especially worthy of attention. Charles Robert Dumas writes in *L'Intransigeant* that "one fact is settled; the efficiency of the German antiaircraft artillery against the hostile aviation. The records of the German antiaircraft artillery show many victims. The fact is certain that if, during the World War, the antiaircraft artillery was less effective than pursuit planes and five planes were brought down by the latter to each plane brought down by the former; the proportion is now reversed. Today five planes are destroyed by the antiaircraft artillery to every one brought down by pursuit aviation. Captain J. R. J. McNamara, British M. P., has stated "my own experiences in Madrid has shown me that aeroplanes are now very definitely afraid of antiaircraft fire from the ground."

The *Literary Digest* in a recent issue contained an article entitled "Planes Debunked: As War Machines They

Win in Theory But Fail in Practice." The author claimed the antiaircraft defenses in Spain have been so effective that daylight bombing has proven impracticable.

The New York *Herald Tribune*, London, February 27 carried the following statement: The British Government proposes to spend £1,500,000,000 in the next five years on its operation for war or peace. They plan to provide means of antiaircraft defense so that raiding squadrons who come across the English Channel will certainly get a hot reception. These antiaircraft forces include fighting planes, searchlights, "pom-pom" antiaircraft guns and a captive balloon barrage which was similar to the ones which were tried in England and France during the World War. This balloon idea is being revised in England on a grander scale.

An English eye witness states in a recent issue of *Aeroplane* that the marksmanship of the antiaircraft batteries is far better than anyone can believe and that they pick off individual 200-mile-an-hour bombers at 12,000 feet. Furthermore he had found plenty of evidence of this, and that the Red bombers always flew over 12,000 feet to escape the really brilliant shooting of the German antiaircraft guns. Air Commander L. E. O. Charlton, a distinguished British air service officer, former British Air Attaché to our country, and author of the very instructive book *War From the Air*, reports that German antiaircraft guns have proven first class, with a range of 30,000 feet. General Pershing was quoted in the *New York Times Magazine* as saying that the tremendous improvement in the marksmanship of antiaircraft batteries and other defensive measures have kept pace with the improvement in the air forces. Further, that he fears that a good many writers of today have overestimated the destructive power of airplanes.

Plans for Selecting Winner of the Coast Artillery Association Reserve Trophy

A BOARD of officers consisting of Lt. Col. Cedric M. S. Skene, C.A.C., Lt. Col. Roy S. Atwood, C.A.C., and Major Milo H. Brinkley, C.A.-Res., has been appointed to study and make recommendations for changes in the plan for award of the trophy as outlined on page 389 in the September-October, 1935, issue of *The JOURNAL*. Changes have been made necessary by the amendments to Army Regulation 140-5 W.D. June 16, 1936, as contained in Circular No. 81 W.D. December 12, 1936. The Board is considering several plans to be submitted to the Coast Artillery Reserve Headquarters. It has also been asked to make recommendation as to the advisability of permitting Regular Army active units to compete for the trophy under the same rules as those to be prescribed for Organized Reserve units.

Night Observation Possibilities

NIGHT observation field glasses are furnished searchlight batteries to supplement other standard equipment.

There have been many criticisms of them and recommendations for their improvement. However, they have given excellent results and attention has been drawn to these glasses even though they are not considered to be the most efficient type. Based on the fact that a plane once located can normally be followed with inefficient night glasses, it is contended by some that their use can be extended even to where they will replace searchlights. We should recognize the limitations of searchlights and take cognizance of the fact that searchlights warn enemy aircraft of the approximate location of the defensive area and give advance notice of the coming gun fire.

It is possible that the night glass idea can be developed to the point where they can be used for continuous tracking in conjunction with efficient sound locator or other locating devices. A night observation telescope that would permit the tracking of aircraft at night without illuminating them would be a step forward. Possibly in the future we shall have such efficient night observation telescopes and locating devices that they will replace searchlights.

* * *

New Type Antiaircraft Target

REGINALD DENNY, the motion picture actor, has developed a six-foot motor-powered bomber type of miniature airplane which has shown promise for use as an antiaircraft target. It is claimed that these targets show a great deal of improvement over the present sleeve target, that they eliminate danger to human life, permit firing at greater ranges and simulate actual warfare conditions. One of their striking characteristics is their low cost. It appears that they can be produced and delivered at a lower cost than the present sleeve target.

Both the Navy and the Army are said to be planning to test this equipment in the near future. In view of the difficulties found and the unsuitability of the sleeve target, it is hoped that these tests will lead to the adoption of a practical and realistic target that has the characteristics of those to be fired on in time of war.

* * *

British National Defense

FROM THE *New York Times*, Copenhagen, Denmark, May 17, 1937. Negotiations with Swedish capitalists of the utmost importance in the British rearmament program have been completed, according to information from authentic sources. After discussions, which have been proceeding for the better part of two years, the British Government finally has arranged to buy from the famous Bofors Works in Sweden virtually its entire output of antiaircraft guns.

Committees of British military and naval experts have been experimenting with this Swedish gun for many months without knowledge of that fact reaching either the press or the public. These experiments have demonstrated that this gun is superior to anything else of its kind known to the British Intelligence Service.

The decision to acquire it in quantity was taken only after the British Vickers Company, after repeated endeavors, had reported that it was unable to produce a model of equal power and quality.

The Bofors is a high-angle gun sending out a stream of small, high explosive shells up to 250 a minute. At a certain height this stream of projectiles becomes visible to the naked eye, thus greatly facilitating the work of the marksmen behind the guns.

The German Government is equally aware of the gun's efficiency and has tried hard to get it ahead of the British, but failed.

In addition to turning out an immediate order for 100 guns, which will be increased later to 500, the Bofors concern is to build a special factory to produce ammunition for the British Government. The total value of the orders to be filled within two years is estimated at \$35,000,000.

The first shipment of the new guns is intended for use in the London area, especially for the defense of the Port of London, which is known to figure initially in the German general staff's war plans. A large part of the British defense resources is concentrated in this area in comparatively small space.

It is believed the acquisition of these new guns will go far toward making this vulnerable area safe. Batteries of the Bofor guns will encircle it, enabling the defenders to meet an air raid with a veritable wall of high explosive shells discharged at amazing velocity.

* * *

Training Antiaircraft Spotters

THE many difficulties encountered in training AA spotters have been in a large measure due to the lack of training facilities. Actual reading of deviations has been confined, in the past, to the few limited occasions when firings took place.

Captain William V. Davis, C.A.C., recently conceived an ingenious plan for the initial training of spotters without any expenditure of ammunition. He proposes to take motion pictures of bursts in the air around a towed target, exactly as seen from the gun and flank observation stations, and to use them as training films so that prospective spotters may be trained by actually spotting the photographed bursts, projected on a screen. It is believed that Captain Davis' plan has a great deal of promise.

* * *

Mobile Antiaircraft Searchlight Units

AS a result of the lessons learned and the difficulties encountered, combined transportation and power units such as are now being used in mobile searchlight organizations will not be purchased in the future. This action is keeping with the action of foreign governments who previously discarded the combined units as standard equipment.

The new standard mobile antiaircraft searchlight unit recently approved for our army, will consist of two 2½-ton trucks, a portable power plant, and a searchlight with

accessories. This new unit should do away with the disadvantages met in the past, provide a longer life of usefulness for the matériel, reduce replacement costs, and afford greater latitude in the normal use of the equipment.

Training in the 260th Coast Artillery

FOR the first time in the history of the 260th Coast Artillery, District of Columbia National Guard, its summer encampment at Fort Story, Virginia, will provide an opportunity for rivalry in antiaircraft machine-gun target practice, between the veteran Battery E, commanded by Captain William F. Bullis, and the newly-organized Battery F, commanded by Captain A. B. C. Graves.

Both organizations have entered actively into training of new men, since the recent expansion of this regiment has made numerous vacancies in all grades.

During the past two years, more than twenty officers will have been commissioned by competitive examination from the ranks. Some of these officers by the time of the summer encampment will have risen to the grade of captain. The expansion planned by the War Department for 1938 will require an even larger number of new officers; and men who enlist now will be afforded an opportunity to compete for these vacancies. All commissioned officers of the District of Columbia National Guard are selected from the enlisted men of the organization.

607th Coast Artillery (TD)

THE 607th Coast Artillery (TD), Organized Reserves of New York, announces an annual competition for military excellency amongst its officers.

The first award is a one-year subscription to THE COAST ARTILLERY JOURNAL for that officer who attains the best record in attendance, activity, excellence as an instructor, and preparation for active duty.

The second award is a medal to be given to the officer who attains the best record of accomplishment in the Army Extension Courses for the training years. An additional requirement is made that this officer must attend at least 75% of the meetings and classes held by the 607th during that period.

The selection board is composed of the commanding officer, Colonel Robert S. Allyn, C.A.-Res., and the regimental staff. The members of the board are ineligible for the awards.

The use of THE COAST ARTILLERY JOURNAL as a prize strikes a responsive chord in the editorial breast. We should like to see more outfits follow the example of the 607th Coast Artillery. As our part of the deal we will try to keep THE JOURNAL the one publication that every up-to-date Coast Artilleryman should read.

Air Defense

L.T. COL. K. M. LOCH, M.C., R.A., internationally known as an antiaircraft defense authority and who com-

manded the first antiaircraft battery formed in France, recently delivered a most interesting and instructive lecture before the Royal United Service Institution.

He brought out the fact that antiaircraft gunnery is still a matter of violent controversy but he stressed the point that an unbiased examination will bring the conclusion that, in its modern form, it can be expected to obtain very positive and definite results.

Colonel Loch did not detract from the value of fighter aircraft as a weapon of active defense, even though the primary condition governing its success is direct contact with the enemy. He made one realize the limitations governing the use of fighter aircraft and the importance of having a well-balanced and all-inclusive defensive plan.

He covered most intelligently all of the measures of defense both active and passive. Even though he had fears that too much emphasis might be laid upon the passive means of defense he discussed them in great detail. He stressed the value of dispersion to insure that no target become particularly remunerative to bombing; and that dispersion has application to practically every scheme of air defense, whether it be the formation in which troops move, the layout of railheads, baseports, or the dispositions of a country as a whole. He discussed the value of concealment, anti-gas, anti-fire organizations and the preservation of morale. Measures in furtherance of morale should be designed to give confidence to the community by educating them as to how they can help protect themselves prior to the outbreak of hostilities and so that they shall *keep things in the proper perspective during hostilities*. The importance of an elaborate and complete warning system was emphasized. Colonel Loch also dealt the part to be played by the antiaircraft gun. He stated that the advances of antiaircraft gunnery offset the new problems created by the difficult target. He said the answer lies in the almost complete technical solution of the problem of determining "where the target is now" and "where the target will be when you propose to hit it." It was brought out that although the complete solution is at hand that that does not mean that there is no room for technical improvement. He next dealt with the searchlight and antiaircraft machine-gun problems and brought out that the modern conception of a weapon to deal low-firing and driving attack is a rapid-firing gun discharging a shell of $1\frac{1}{2}$ to 2 lbs. weight. He lists as a means of active defense *aerial obstacles* and discusses single balloons and balloon aprons under this subject head.

In conclusion he stated that antiaircraft defenses are essential in the furtherance of morale and that this fact was clearly demonstrated by the London defenses in the World War. Without making any appeal for the lessening of the number of air fighters he said that "in order to win a campaign one must have freedom of action with one's offensive resources, and in modern conditions that freedom can be insured only by having a secure home front." Adequate antiaircraft defense will provide a secure home front.

OPEN FORUM

MAY VIGOROUS THOUGHT BE STIMULATED AND CRYSTALLIZE INTO ACTION

Clotheshorse

Sir:

FOR years I've been reading articles about uniforms for enlisted men. The said articles usually were written by retired generals, lieutenants fresh out of the Point, French dress designers, and master sergeants named Kulikofski (DEM^L at Miss Priss' School for Girls).

What do these self-appointed authorities know about the soldier's needs? Has General Vanderhoof ever pulled a twenty-four hour guard with his tanking calves tightly cased in a pair of canvas and sausage-skin leggins? Has he ever wrapped ten yards of G.I. burlap around his shanks—and consigned the originator of 'em to Hell?

Perhaps Master Sergeant Kulikofski, who has worn slacks the last twenty years, would heartily endorse our beautifully pegged and form-fitting breeches after doing the full knee bend forty times at reveille calisthenics? To pick up a stray cigar butt or his winnings in a crap game, Private Ordinary Soldier first has to loosen his belt, unbutton his fly and slide his breeches down over his hips.

Why is an army blouse? It has four large pockets, but we can't carry marbles or chalk in 'em. Maybe it's just a parking space for the assorted badges, buttons and insignia that clutter up a soldier's façade. Pardon . . . if we didn't wear a blouse there would be no use for the garrison belt. It's all clear now.

Are we fashion plates or fighting men? Who conceived the idea of neck-ties for dog-faces? If they are supposed to be ornamental they should be issued in colorful designs. I have in mind a creation: purple polka dots on a salmon background—to be used for guards of honor.

What about shoes? A two-toned combination of tan and white would wow the populace, especially if worn in combination with pink parasols and hair done up in ribbons.

So civilization is advancing? But we still wear campaign hats and garrison caps. The tropical sun helmet can be purchased for twenty-eight cents; a few pennies worth of paint applied weekly would keep it in shape. The troops in cold climates would appreciate an old-fashioned soft cap with ear-flaps.

Oh yes! White gloves for our modern axle-grease soldiers. If Private Fetchit has dish-water hands, what of it? Ever try to pick up an eel with your bare hands? That's what it's like when a properly oiled and shined rifle is handled with white cotton gloves.

Believe me, we don't need a new uniform, for uniforms aren't issued any more. The soldier buys his clothes and has to like it.

The one-inch cravat doesn't suit, so the post exchange peddles a superior article—one with a noble flair and lots of excess tail. The overseas caps are regulation at the mo-

ment in some units, but they are not articles of issue. You guessed it—the company tailor massacres a piece of cloth, and here's your cap. He will also (for a price) make you a uniform of the highly touted sand-tan, that will bind and pinch in the most unexpected places, and will look worse than the issue. The G.I. cotton shirt, roomy enough to be almost comfortable, is frowned upon. To the post exchange again for a hand-tapered Arrow.

Personally, I don't like the lines of my United States rifle. The calibre is not suitable. The bore is too long. The stock is too bulky. The sights are not modern. I'm wondering—just an idea, you know—whether the Old Man would let me stand Saturday morning inspection with my Seers-Bluebuck, special hand-honed, light-weight, moon-gauged sporting gun? PERPLEXED CORPORAL.

* * *

Promotion of Reserve Officers

Sir:

I believe A Captain, Coast Artillery Reserve, can answer the question he asks in the March-April JOURNAL by a little calm analysis. He wonders if W.D.G.S. wants Reserve officers, who are not service school graduates, to advance beyond the grade of captain.

Eighteen Coast Artillery Reserve officers attend the Special Course at Fort Monroe each fall. About ten or twelve will be in the AA section, the balance in the Sea-coast section. The average age at promotion to the grade of major will be around 38. Not many reserve field officers will qualify, physically, for field service beyond the age of 55. So let us figure on 17 years in field grades. Then if the service schools were to be the sole feeders for Reserve field officers, we would have available at any time, 306 Reserve field officers of Coast Artillery, of whom about 170 would be assigned to AA units. Now compute the war time needs and you have the answer.

Now let us consider the busy civilian trying to find time to complete the 40 series, Army Extension Courses. We shall take the case of Captain B, who has just received his promotion. He has completed the 30, but has not started the 40 series. He is required to remain in the grade of captain five years before his next promotion. There are 200 hours in the 40 series. Let us assume he wants to get his certificate of capacity one year before he is eligible for promotion. By simple arithmetic, he needs to do 50 hours a year. Six hours a month for nine months more than does it. That means about one lesson every two weeks. How busy does a man have to be to find it impossible to devote two evenings a month to his avocation?

My experience has been that the W.D.G.S. and the subordinate echelons concerned with the O.R.C. are anxious to have Reserve captains qualify for promotion to

field grade as rapidly as possible. It seems to me that A Captain, Coast Artillery Reserve, is taking a swing at a straw man.

ANOTHER CAPTAIN, C.A.-Res.

* * *

Who Wants to be a General?

Sir:

Sometime ago there appeared in your columns an article entitled "Legion of the Lost" based on the premise that all officers want to be generals; and since general officers are normally chosen from Command and General Staff School graduates, therefore all officers desire to go to the Command and General Staff School. Since publication of this article there has been some discussion but so far you have not published any remarks with regard to the fact that there are many officers who have no desire to be generals.

For the benefit of our superiors we must all show ambition and desire for promotion but, "believe it or not," there are officers who prefer being captains to having field grade and a great many who have no ambition beyond the grade of colonel; and after all, why not?

A captain's job is of sufficient importance to satisfy any normal ego. He has responsibility, authority, and independence. He is in direct contact with men and has more opportunity to influence and control them than he would have in any other position. That is the type of work that many of us love, and in spite of the skepticism of that group who are always on the lookout for something to advance themselves, we prefer it to personal prestige. If we could go on being captains forever we would be happy; but since we must retire, we hope to be made full colonels just in time to get the retired pay of that grade. However, the difference in pay between retired general officers and retired colonels is not worth the effort you take and the enemies you make to get it.

So give me a battery to command, two bars to wear, a promise of retiring as colonel and the comradeship of my fellows and respect of my juniors: let someone else be the general.

* * *

Defense Against Tanks

Sir:

In the January-February issue of THE COAST ARTILLERY JOURNAL, Captain Gill is quoted as advocating the use of antiaircraft as a defense against tanks. Pages 81 and 85.

I advanced a similar heresy via November-December JOURNAL's Open Forum, with that degree of blushing and coy anonymity as should conform with the dignity of that great and highly effective improvement on an adequate standing army, the civilian component.

I wish to disclaim any advance knowledge of Captain Gill's article; indeed, would never have sounded off if it had been known that the subject was in the capable hands of a Regular officer.

But newer 3" AA guns are for case III fire and the only director adapted to terrestrial targets is the M₂ which may or may not be available in quantities on M day and which may be hit, thus putting out of action all four guns. These guns are well adapted to case II fire at land targets, all they need is a sight, just in case.

Of course an emergency AA data computing system is violently and cryingly needed, but, as Kipling says, that is another story unless its sights will do for tanks.

FIRST LIEUTENANT, C.A-Res.

* * *

Doesn't Like Scoring Formulas

Sir:

Why do we continue trying to defend the existing methods of scoring for target practices? Every one except the office boys and school teachers know that they are a lot of bunk. It is believed that our failure to change these formulae is a true deterrent to progress. Target practices are not conducted with a view of getting the maximum training from them but for the sole purpose of beating a formula. We all know that the artilleryman—not the swivel chair boys or school teachers—beat the formula like a smart crap shooter in a game with the innocent.

An example of the worthlessness of formulae was called to my attention lately. It was said that a battery in the Philippines fired one of the most useless target practices ever witnessed. That five of the seven shots were so far away from the target that they were lost to all means of observation and yet that battery obtained a creditable score of over 200. Many antiaircraft target practices have degraded to the point where the question of training is but a minor consideration. They all strive to beat the formula and most of them succeed. It is high time we wake up.

CAPTAIN, C.A.C.

* * *

Pay Increase

Sir:

All activities for the realization of the pay increase are useless unless strong War Department approval is behind them. There should be no question as to the need for an increase for junior officers for they have been certainly poorly treated in the past. Only the higher grades were taken care of in the preparation of the last two pay bills, probably through a misunderstanding of the junior officers' problems or due to shortage of funds available.

The junior officers who have suffered throughout the period are due the utmost consideration but they will receive no relief unless the necessary remedial action is initiated by the War Department. You can talk and write all you want to but Congress will accept only the War Department's recommendation and all effort should be concentrated towards securing the sympathetic interest of higher authority in the War Department in order that the junior officers may receive proper compensation.

MAJOR, C.A.C.

COAST ARTILLERY BOARD NOTES

Any individual, whether or not he is a member of the service, is invited to submit constructive suggestions relating to problems under study by the Coast Artillery Board, or to present any new problems that properly may be considered by the Board. Communications should be addressed to the President, Coast Artillery Board, Fort Monroe, Virginia.

THE COAST ARTILLERY BOARD

COLONEL WILLIAM E. SHEDD, JR., C.A.C., President
MAJOR CLARENCE E. COTTER, C.A.C.
MAJOR GORDON B. WELCH, Ord. Dept.
MAJOR ALVA F. ENGLEHART, C.A.C.

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MAJOR EUGENE T. CONWAY, C.A.C.
CAPTAIN HOBART HEWITT, C.A.C.
CAPTAIN WALTER J. WOLFE, C.A.C.

SECTION I

Projects Completed Since Last Issue of the Journal

PROJECT No. 1039—DATA TRANSMISSION SYSTEM, T-11.—This apparatus for transmitting firing data from the plotting room of a fixed seacoast battery to the guns depends on the use of alternating current self-synchronous motors similar to those employed in the data transmission systems for antiaircraft guns. The Board submitted a final report based on the tests conducted in the Harbor Defenses of Chesapeake Bay and Sandy Hook recommending that this system be adopted as standard for installation at fixed seacoast batteries of barbette carriage guns and howitzers. Several sets of equipment are already being installed. The Board also recommended that, in future construction of seacoast artillery batteries of eight-inch or larger caliber, provision be made for the installation of precision gearing for azimuth and elevation take-off to the data indicators. The application of data indicators to disappearing carriages is not contemplated at present.

PROJECT No. 1091—MODIFIED BINOCULAR MOUNTS, ANTIACRAFT SEARCHLIGHT CONTROLLER.—Some difficulty has been experienced in using the model 1934 antiaircraft searchlight controller when the target was near the zenith owing to the fact that the eyepieces of the binoculars move in a curve which is not concentric with the path of the observer's eyes. Two modified binocular mounts, in which an effort has been made to eliminate this disadvantage, were submitted to the Board for test. Both of the mounts were more efficient than the standard model 1934 mount but in neither of them did the motion of the binocular eyepieces exactly follow the eyes of the observer. The Board devised a further modification for the simpler of the two mounts. This modification was more successful but necessitated the use of a yoke wider and deeper than the standard. The improvement in efficiency was not deemed sufficient to warrant the modification of the mounts already in service but it was recommended that the modification devised by the Coast Artillery Board be incorporated in future designs. In the

binocular mounts already in service a satisfactory operation may be obtained for the conditions most frequently occurring by adjusting the height of the eyepieces to the height of the observer's eyes when the binoculars are elevated to 800 mils.

PROJECT No. 1082—MAP REPRODUCTION EQUIPMENT.—Under the present table of allowances the only map reproduction equipment authorized for field use is a duplicator set of the stencil type. This equipment is



*Project No. 1091
Modified binocular mounts, antiaircraft searchlight controller.*

seldom used, possibly because of the time and difficulty involved in copying maps on the original stencil. The two types of map reproduction equipment furnished for test permit maps and other like material to be reproduced without the intermediate step of preparing a stencil. In one process, contact prints of the maps are made with commercial bromide developing-out papers in much the same way as a print is made from a photographic negative. In this process a darkroom is required for the development of the prints but only a short time of exposure to sunlight or an incandescent lamp is needed. In the other process the development can be done without a darkroom but the exposure time for the prints is rather long unless there is brilliant sunlight. In both of these processes the prints are damp when development is completed. Time is required for drying and when dry the prints do not lie flat and smooth. The Board made a comparative test of a third process in which a special type of paper developed by the action of ammonia fumes was employed. In this process the print is never wet; consequently the maps lie flat and smooth and are ready for use the instant the development is completed. No darkroom is required but prints can only be made with rapidity in strong daylight. On cloudy days the making of prints is very slow if not impossible. The simplicity and portability of the equipment are advantages of this process. While none of the methods tested completely serves quite the same purpose as the stencil type of duplicator equipment, the Board believes that the ammonia vapor development process would satisfy the service requirements better than any one of the other sets of equipment and, if some field equipment for making prints by artificial light could be developed, would entirely meet the Coast Artillery needs. The Board recommended standardization of the equipment for ammonia vapor development.

* * *

SECTION II

Projects Under Consideration

PROJECT No. 953—RADIO-CONTROLLED HIGH-SPEED TARGET.—The improved type of control apparatus has been installed on the boat and the target is awaiting favorable weather and engine repairs prior to extended tests. Control signals sent from an airplane, using a standard Air Corps transmitter, were used to operate the control apparatus during a preliminary test. It appears that control of the target from an airplane is feasible. Further tests are to be made.

PROJECT No. 1075—CABLE INSTALLATION FOR FIXED ANTIACRAFT GUNS.—Installation of the data transmission system M3E1 in a battery of 3-inch fixed anti-aircraft guns, at Fort Monroe, Virginia, has been completed and the wiring has been checked. Tests will consist of all firings conducted with this battery during the summer training season by various units and organizations. The installation consists principally of small concrete huts, or pill boxes, housing the various junction boxes,

buried armored cable leading to the several director positions and to the guns, and slip rings, or all around electrical contacts, on the gun carriages. An interesting feature of this installation is the air-tight construction of all junction and distribution boxes. This construction is part of the effort to exclude moisture, sand and dust, and thus prevent deterioration and corrosion of the electrical system. As a further precaution, a motor-driven dessicator, or dryer, has been provided to dry out the insides of all air-tight boxes. It is to be used every six months.

PROJECT No. 1079—MODIFIED FIELD JACKETS.—The service test of these jackets has been completed and the data are now being analyzed. Two very definite conclusions have been indicated thus far: first, the wearers agree unanimously that the field jacket is far more suitable for wear in the field than the service coat and second, a decided majority of the wearers prefer the shorter of the two types of jacket with the slash pockets. Aside from minor details, there are major questions yet to be settled such as the basis of issue and the possible extension of the use of these jackets to include garrison wear. In the latter connection, it is considered that the jacket, worn without overcoat, would not be suitable for wear at ceremonies.

PROJECT No. 1086—POSITION FINDING BY AERIAL OBSERVATION.—Several methods of position finding by aerial observation have been used in the service, but, in most cases, dependence was placed on combination of a depression angle indicator in the airplane with either a radio direction finder or terrestrial tracking and position finding equipment to locate the airplane and the target. One battery utilized none of these instruments but depended upon the ability of the airplane observer to determine the bearing of two lines, each passing through the target and a known point on shore. This battery secured very good results, but it is considered that the presence of outlying islands and good visibility assisted greatly in that method. The Board has been investigating a new method wherein the observer does not require a sight on land after he has crossed the shore line. The following data is required in this method: the starting point of the airplane's course (usually the battery), the bearing of the course, drift of airplane, ground speed, time between observations on the target, angle between course of airplane and line-observer-target, course and speed of target. As a result of the first test of the method, a lighthouse was located within 150 yards. Additional tests have resulted in much larger errors, but it is hoped that further tests will produce satisfactory results.

* * *

SECTION III

Miscellaneous

CONTINUOUS FUZE SETTERS.—A study of the performance of continuous fuze setters was undertaken because of the many unfavorable comments contained in the

reports of target practice. From this study, it was concluded that most of the malfunctionings had occurred on the M5 and M6 types of fuze setter. A few of the M5 and M6 fuze setters were given extensive modifications prior to the target practice season. Five out of six of the practices conducted with the modified M5 and M6 fuze setters were free from trouble. The proportion of malfunctionings occurring with the unmodified M5 and M6 fuze setters was much greater. While the experience with the modified M5 and M6 fuze setters was limited, the modifications appeared to have satisfactorily corrected the sources of difficulty. The Board recommended that the overhaul of the M5 and M6 fuze setters be expedited. The M2A1 and M3A1 fuze setters gave very little trouble. Apparently, the A1 modification of these fuze setters is giving satisfactory results.

One of the chief sources of trouble was breakage of fuze lugs, either in the fuze setter or in the loading operation. A more sturdy type of fuze lug has been developed, but may not reach the service during the present year. In the meantime, care in the handling of fuzes will continue to be necessary. The Coast Artillery Board tests indicated that there are wide differences in the strength of lugs of the same lot, some of them breaking on the fourth setting, others enduring many more settings.

Tests are to be conducted to determine whether it will be of advantage to remove from the M5 and M6 fuze setters the mechanism which locks the round until the setting has been completed. Failure to release on the part of this mechanism has been one of the most annoying of the difficulties experienced with the fuze setters.

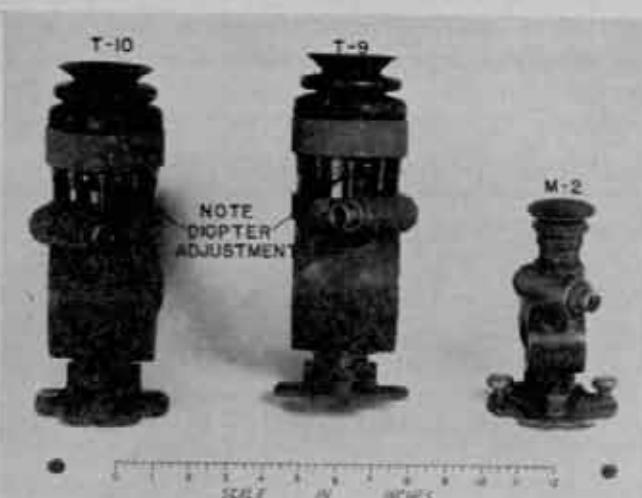
MODERNIZED R. A. CORRECTOR.—Modernization of the existing stock of antiaircraft data computers, M1917 (R. A. Correctors) has been suggested as a means of providing data computing instruments, suitable for employment in an emergency, with various batteries of the older models of antiaircraft guns. As these instruments stand at present, they are unsuitable for engaging high speed, high altitude targets. In addition, the approximations introduced by the effort to account for dead time tend to produce excessively large errors in the firing data for such targets under certain conditions. The Board has analyzed the theoretical bases of the solutions provided by the R. A. Corrector and has offered other solutions that should provide a theoretically acceptable accuracy.

MORTAR FIRING TABLES.—The Ordnance Department is engaged in recomputing the mortar firing tables on the basis of a new range firings and recent research and development in the science of exterior ballistics. Certain new features will be introduced in the design of these tables. Notable among these is the listing under differential effects of the corrections in yards necessary to provide a corrected elevation that will reach the map range against which the correction is listed. It will be recalled that existing tables, except in the case of height of gun with respect to target, list effects which, with the signs changed, are applied as corrections. While, in most cases,

this leads to sufficiently correct elevations, situations may arise in which this procedure produces errors that are not acceptable.

WEAR ON MACHINE-GUN BARRELS.—In the November-December issue of *The JOURNAL*, the Board mentioned the use of the breech bore gauges for determining the condition of machine-gun barrels. Subsequent study and comment on this subject by agencies of the Chief of Ordnance indicate that difficulty has been experienced in correlating gauge readings with number of rounds fired from and serviceability of barrels. The development of gauges for caliber .50 machine-gun barrels and the study of the relationship between wear of the barrel and velocity to be expected are continuing. Lacking a breech bore gauge, the amount of wear of a barrel can be determined by dropping a bullet into the bore and measuring the depth of seating. If care is taken to use an undeformed bullet and to use the same bullet in every barrel, the amounts of wear can be compared rather accurately. By this means all the gun barrels of a platoon can be matched for wear and thus the cone of fire can be concentrated.

MODIFICATION OF THE A.A., B.C., TELESCOPE.—The Chief of Coast Artillery directed the Board to submit a study to determine whether some simpler and more serviceable substitute for the A.A., B.C., observation instrument, M1, could be devised. The expensive character of the present instrument in conjunction with the numerous purposes it is supposed to serve has so far precluded the issue of anywhere near the full quota for organizations. The A.A., B.C. instrument is used at present for target identification, for measuring data used in analysis of target practice, and for flank spotting. It appears that if separate instruments were provided for each of these purposes some economy in manufacture and issue could be obtained because the instruments would be simpler than the A.A., B.C. instrument. The Board outlined the military characteristics for each of the proposed substitutes, except the flank spotting instrument, and recommended that cost estimates be prepared by the procuring service to determine whether any substantial economies would result from the adoption of such an expedient. The Board proposed, as a target identification instrument, a powerful telescope specially designed for night use and mounted on a tripod mount with an extra telescope for use of the tracker. This instrument would probably be nearly as expensive as the present A.A., B.C. telescope but since it would not be used for target practice purposes or flank spotting, fewer would be issued. For use in target practices, the Board suggested a basic instrument consisting of an inexpensive tracking telescope with suitable mount, tracking controls and indicators for angular height and azimuth. The mount would be arranged to permit either one or two elbow telescopes of the M1A2 type to be attached in such a manner that they could be used for observing deviations of bursts. It was proposed that each antiaircraft gun battalion receive two basic instruments and three elbow telescopes. The Battery instrument



*Project No. 1083
Elbow telescopes M-2, T-9, and T-10.*

would have two of the elbow telescopes attached; the flank station instrument, one. Each machine-gun battalion would receive two basic instruments. Similarly, an allowance would be provided for the use of harbor defense units firing additional assignment antiaircraft practices. The optical characteristics of these instruments, since they would be used only in connection with target practices, would be simpler than those of the A.A., B.C. instrument. It is hoped the cost of equipping the service would thus be decreased. No characteristics for the flank station instrument for use in observing range or altitude deviations were prepared but there appear to be a number of possible and simple devices for the purpose. It was proposed that a comparative test be conducted in the near future for the purpose of determining the relative merits of several such expedients.

PROJECT NO. 1083—ELBOW TELESCOPES, T₉ AND T₁₀.—The comparative tests of these telescopes were described in the last issue of THE JOURNAL. The eight-power T₁₀ telescope was found to be satisfactory in every respect, except size, weight, and expense. The Coast Artillery Board recommended that neither of these new telescopes be adopted as standard articles at the present time. Instead, it was recommended that development

be undertaken to secure a smaller, lighter, less expensive elbow telescope; that is, one which will be somewhat of a compromise between the T₁₀ telescope and the present standard M₂ telescope.

AIRPLANE FLARES.—As a result of experience reported in joint Air-Corps-Antiaircraft Artillery exercises, questions have been raised as to the effect of airplane flares upon the efficiency of tracking and height finding observers at antiaircraft gun batteries. At the direction of the Chief of Coast Artillery, the Board conducted some tests to determine the actual effect of airplane flares dropped on or near the line of sight between the observing instruments and the target. The supply of flares was too limited to test every one of the numerous contingencies that might occur and safety considerations prevented the dropping of flares directly over the gun positions. Enough data was gathered, however, to show that flares offer at most only temporary hindrance to the observers, even though dropped exactly on the line observer-target. Neutralization of antiaircraft batteries by dropped flares seems to be remote as a possibility.

DISTANT CONTROL FOR ANTIACRAFT SEARCHLIGHTS USED IN SEACOAST DEFENSE.—Consideration was given to the type of controller to be used with antiaircraft type portable searchlights which are to be used also for seacoast defense missions. In antiaircraft practice the controller is placed comparatively near the searchlight in order to avoid the effects of a parallax between the movement of the controller and the movement of the beam. Controllers for seacoast lights, on the other hand, have been placed at considerable distances from the light controlled. If the antiaircraft type of controller is to be applied to lights used for seacoast missions, the distance between the light and the controller will have to be limited to about fourteen hundred feet owing to the electrical characteristics of the control mechanism. The Board stated that there was no objection to restricting the location of the controller station to a distance of about fourteen hundred feet. The Board recommended that a special controller, consisting of the control elements of the comparator without the binoculars and comparator dials, be developed for use in seacoast defenses.

THERE IS NOTHING in this world as extravagant as an inefficient military establishment. There is no economy in a third-rate army. It should be first-class, or we shouldn't attempt a national defense scheme at all.—REP. JAMES W. WADSWORTH.

COAST ARTILLERY ORDERS

(Covering the Period March 1 to April 30, 1937)

Colonel H. T. Burgin, from Office, Chief of Coast Artillery, Washington, D. C., to 6th, Fort Winfield Scott.

Colonel R. W. Collins, from 11th, Fort H. G. Wright, to Sixth Corps Area, Chicago.

Colonel Richard Donovan, to member of General Staff Corps, and to General Staff with troops. May 31. Previous orders amended.

Colonel J. A. Green, from General Staff Corps, Eighth Corps Area, Fort Sam Houston, to Office, Chief of Coast Artillery, Washington, D. C.

Colonel J. S. Pratt, from instructor, Army War College, to Hawaii, sailing New York, May 29.

Colonel F. H. Smith, from member of the General Staff Corps, and from duty as Chief of Staff of the Panama Canal Department, to 2d, Fort Monroe.

Colonel G. L. Wertenbaker, retired, upon his own application, May 31.

Lieutenant Colonel F. S. Clark, from 2d, Fort Monroe, to instructor, C.A. School, Fort Monroe.

Lieutenant Colonel R. B. Crockett, from Paris, France, to 7th, Fort Hancock, August 16.

Lieutenant Colonel J. B. Crawford, from instructor, C&G.S. School, Fort Leavenworth, to the Philippines, sailing New York, September 11.

Lieutenant Colonel C. A. W. Dawson, from U. S. Army Transport *Grant*, Fort Mason, to 13th, Fort Crockett.

Lieutenant Colonel F. E. Emery, Jr., from Hawaii, to Org. Res., Fort Monroe.

Lieutenant Colonel P. S. Gage, from student, Army Industrial College, to 13th, Fort Monmouth.

Lieutenant Colonel F. M. Green, from 2d C.A. District, New York, to Org. Res., Second Corps Area, New York.

Lieutenant Colonel M. J. Hickok, from student, Army War College, to 9th, Fort Banks.

Lieutenant Colonel W. W. Hicks, to Army and Navy General Hospital, Hot Springs, Ark., for observation and treatment.

Lieutenant Colonel Charles Hines, from student, Army War College, to student, Army Industrial College, August 21.

Lieutenant Colonel C. E. Hocker, from Hawaii, to C&G.S. School, Fort Leavenworth.

Lieutenant Colonel J. P. Hogan, from instructor, New York National Guard, to office Chief National Guard Bureau, Washington, D. C.

Lieutenant Colonel F. A. Holmer, retired, upon his own application, July 31.

Lieutenant Colonel W. C. Koenig, from student, Army War College, to the Philippines, sailing New York, September 11.

Lieutenant Colonel Gooding Packard, from the Philippines, to The Citadel, Charleston, S. C.

Lieutenant Colonel E. H. Thompson, to San Francisco, sailing New York, August 4. Previous orders amended.

Lieutenant Colonel Eugene Villaret, to Belgrave, Yugoslavia, via Paris, and to American Embassy. Previous orders amended.

Lieutenant Colonel W. C. Washington, from Agric. & Mech. College of Texas, to Panama, sailing New York, August 25.

Lieutenant Colonel L. B. Weeks, from National Guard Bureau, Washington, D. C., to 2d, Fort Monroe, June 30.

Lieutenant Colonel R. W. Wilson, from Panama, to University of Pittsburgh, Pittsburgh.

Major S. W. Anderson, from student, C&G.S. School, Fort Leavenworth, to Hawaii, sailing New York, August 13.

Major E. M. Benitez, from 52d, Fort Monroe, to C&G.S. School, Fort Leavenworth.

Major H. B. Bliss, from student, Q.M. School, Philadelphia, to Carlisle Barracks, Pa.

Major A. H. Campbell, from Org. Res., Third Corps Area, Fort Monroe, to U.S.M.A., West Point, June 1.

Major R. M. Carswell, to the Philippines, sailing New York, May 19. Previous orders amended.

Major A. C. Chesledon, from Mississippi State College, to 11th, Fort H. G. Wright.

Major F. L. Christian, from student, C&G.S. School, Fort Leavenworth, to Panama, sailing New York, August 25.

Major F. W. Cook, from the Philippines, to 14th, Fort Worden. Previous orders amended.

Major J. T. deCamp, from student, C&G.S. School, Fort Leavenworth, to Panama, sailing New York, August 4.

Major A. F. Englehart, from C.A. Board, Fort Monroe, to Hawaii, sailing New York, August 4.

Major F. F. Gallagher, from Org. Res., 1st Corps Area, Boston, to Hawaii, sailing New York, May 19.

Major M. B. Gibson, from 14th, Fort Worden, to 6th, Fort Winfield Scott.

Major L. W. Goepert, from the Philippines, to 2d, Fort Monroe.

Major P. W. Hardie, retired, upon own application, April 30.

Major F. H. Hastings, from student, Army Industrial College, Washington, D. C., to 6th, Fort Winfield Scott.

Major F. A. Hause, from Hawaii, to instructor, C.A. N.Y. National Guard, New York.

Major R. J. Imperatori, from recruiting, Fort Slocum, to Panama, sailing New York, August 25.

Major J. P. Jacobs, from Hawaii, to 3d, Fort Rosecrans. Previous orders amended.

Major T. E. Jeffords, from Hawaii, to Joliet Township High School, Joliet, Ill.

Major H. S. Johnson, from student, C&G.S. School, Fort Leavenworth, to Hawaii, sailing New York, August 4.

Major Creighton Kerr, from Hawaii, to 51st, Fort Monroe.

Major R. V. Ladd, from Univ. of Cincinnati, Cincinnati, to Hawaii, sailing New York, August 13.

Major L. H. Lohmann, from Kansas State College, Manhattan, Kansas, to the Philippines, sailing New York, September 11.

Major R. W. McBride, from Joliet Township High School, Joliet, Ill., to the Philippines, sailing New York, September 11.

Major S. L. McCroskey, relieved from

additional duty, Org. Res., 3d Corps Area.

Major W. F. Marquat, from General Staff with troops, First Corps Area, Boston, to the Philippines, sailing New York, September 11.

Major B. L. Milburn, from student, Army War College, to instructor, C&G.S. School, Fort Leavenworth.

Major G. W. Ricker, from student, Army War College, to member, General Staff Corps, War Department General Staff.

Major L. E. Schoonmaker, from 6th, Fort Crockett, to Org. Res. First Corps Area, Boston.

Major W. H. Sweet, from Hawaii, to 13th, Fort Barrancas.

Major A. V. Winton, from student, C&G.S. School, Fort Leavenworth, to instructor, Mass. Natl. Guard, Fall River.

Captain W. L. Barker, from 14th, Fort Worden, to student, C.A. School, Fort Monroe, August 25.

Captain A. T. Bowers, from 52d, Fort Hancock, to U.S.M.A., West Point.

Captain C. N. Branham, from Hawaii, to 10th, Fort Rodman.

Captain M. G. Cary, from University of Illinois, Champaign, Ill., to Hawaii, sailing New York, August 4.

Captain P. W. Cole, from student, C&G.S. School, Fort Leavenworth, to 63d, Fort MacArthur.

Captain B. C. Dailey, from instructor, Mo. Natl. Guard, to Hawaii, sailing New York, May 19.

Captain L. L. Davis, from student, C&G.S. School, Fort Leavenworth, to Hawaii, sailing New York, August 4.

Captain W. V. Davis, from student, C.A. School, Fort Monroe, to Hawaii, sailing New York, August 4.

Captain K. L. F. deGravelines, from student, C.A. School, Fort Monroe, to Panama, sailing New York, August 25.

Captain R. E. DeMerritt, from 62d, Fort Totten, to Hawaii, sailing New York, May 29.

Captain L. A. Denson, Jr., from student, C&G.S. School, Fort Leavenworth, to the Philippines, sailing New York, September 11.

Captain D. S. Ellerthorpe, from student, C.A. School, Fort Monroe, to Hawaii, sailing New York, August 13.

Captain H. P. Ellis, from 61st, Fort Sheridan, to Panama, sailing New York, May 4. He will sail for Hawaii, from Panama, June 7. Previous orders revoked.

Captain J. H. Featherston, from student, C&G.S. School, Fort Leavenworth, to Hawaii, sailing New York, August 13.

Captain W. R. Goodrich, from Utah State Agric. College, to Hawaii, sailing San Francisco, August 28.

Captain P. T. Gregory, from Detroit High School, to Hawaii, sailing New York, August 4.

Captain A. L. Haggart, from 62d, Fort Totten, to Rockford High School, Rockford, Ill.

Captain John Harry, from Mississippi State College, to the Philippines, sailing New York, September 11.

Captain J. S. Henn, from Univ. of Alabama, to Hawaii, sailing New York, May 19.

Captain H. P. Hennessy, from Univ. of Cincinnati, to 52d, Fort Hancock.

Captain D. B. Herron, from Virginia Polytechnic Institute, Blacksburg, to Hawaii, sailing New York, August 4.

Captain C. W. Holcomb, to instructor, C.A. School, Fort Monroe. Previous orders amended.

Captain Armand Hopkins, from student, C.A. School, Fort Monroe, to U.S.M.A., West Point.

Captain P. B. Kelly, from student, C&G.S. School, Fort Leavenworth, to 61st, Fort Sheridan.

Captain F. H. Koerbel, transferred to Q.M. Corps, March 13.

Captain R. H. Kreuter, from student, C&G.S. School, Fort Leavenworth, to Air Corps Tactical School, Maxwell Field, Ala.

Captain F. C. McConnell, from student, C&G.S. School, Fort Leavenworth, to Panama, sailing New York, August 25.

Captain J. H. Madison, from student, C&G.S. School, Fort Leavenworth, to 62d, Fort Totten.

Captain Otta Marshall, from Fort Sloman, June 10, to his home and await retirement.

Captain F. A. Mitchell, from student, C&G.S. School, Fort Leavenworth, to U.S.M.A., West Point.

Captain J. W. Mosteller, Jr., transferred to Chemical Warfare Service, February 25.

Captain H. H. Newman, Jr., from 52d, Fort Monroe, to Georgia School of Technology, Atlanta.

Captain G. M. O'Connell, promoted Major, March 1.

Captain J. H. Pitzer, from Hawaii, to Boise High School, Boise, Idaho.

Captain Frank Richards, from property auditor, Hq. 4th Corps Area, Atlanta, to finance officer, Fort McPherson.

Captain M. M. Santos, from student, Command and General Staff School, Fort Leavenworth, to the Philippines, sailing San Francisco, October 5.

Captain F. F. Scheiffler, from Hawaii, to University of Illinois, Champaign. Previous orders revoked.

Captain P. C. Sevilla, from student, C&G.S. School, Fort Leavenworth, to the Philippines, sailing San Francisco, October 5.

Captain W. B. Short, from student C.A. School, Fort Monroe, to 69th, Fort Crockett.

Captain L. S. Smith, from student, C&G.S. School, Fort Leavenworth, to the Philippines, sailing New York, September 11.

Captain E. R. C. Ward, from Panama, to 51st, Fort Monroe.

Captain W. A. Weddell, from Hawaii, to University of Alabama. Previous orders revoked.

Captain W. J. Wolfe, from C.A. Board, Fort Monroe, to Virginia Polytechnic Institute, Blacksburg, August 1.

First Lieutenant J. G. Bain, from Panama, to 6th, Fort Winfield Scott.

First Lieutenant F. T. Berg, from student, C.A. School, Fort Monroe, to Panama, sailing New York, August 25.

First Lieutenant F. A. Bogart, Fort Monroe, to student, C.A. School. Advanced Course.

First Lieutenant L. N. Cron, from student, C.A. School, Fort Monroe, to U.S.M.A., West Point.

First Lieutenant J. T. Darrah, from student, C.A. School, Fort Monroe, to Hawaii, sailing New York, August 4.

First Lieutenant M. K. Deichmann, from 52d, to student, C.A. School, Advanced Course, Fort Monroe.

First Lieutenant J. B. F. Dice, from student, C.A. School, Fort Monroe, to the Philippines, sailing New York, September 11.

First Lieutenant C. E. Dunham, from Panama, to 11th, Fort H. G. Wright.

First Lieutenant J. C. East, from student, C.A. School, Fort Monroe, to 6th, Fort Winfield Scott.

First Lieutenant C. H. Fernstrom, from student, C.A. School, Fort Monroe, to Panama, sailing New York, August 25.

First Lieutenant A. C. Gay, from student, C.A. School, Fort Monroe, to U.S.M.A., West Point.

First Lieutenant O. H. Gilbert, from Panama, to 52d, Fort Hancock.

First Lieutenant P. N. Gillon, Watertown Arsenal, to student, Ordnance School, advanced class.

First Lieutenant C. E. Green, from 69th, Fort Crockett, to student, C.A. School, Fort Monroe, revoked.

First Lieutenant R. F. Haggerty, from student, Ordnance School, Watertown Arsenal, to student, Ordnance School, Aberdeen Proving Ground.

First Lieutenant J. H. Kochavar, to Panama, sailing San Francisco, July 7. Previous orders amended.

First Lieutenant A. M. Lazar, from student, C.A. School, Fort Monroe, to the Philippines, sailing New York, September 11.

First Lieutenant A. J. Lepping, from Panama, to 62d, Fort Totten.

First Lieutenant H. duB. Lewis, from student, Ordnance School, Watertown Arsenal, to student, Ordnance School, Aberdeen Proving Ground.

First Lieutenant J. R. Lovell, Fort Monroe, to student, C.A. School, Fort Monroe, Advanced Course.

First Lieutenant A. A. McCrary, transferred to Signal Corps, May 8.

First Lieutenant C. L. MacLachlan, from student, C.A. School, Fort Monroe, to Panama, sailing New York, August 25.

First Lieutenant W. L. McNamee, from student, Mass. Inst. of Technology, to the Philippines, sailing New York, September 11.

First Lieutenant H. W. Mansfield, from Fort Sam Houston, to student, Ordnance School, Watertown Arsenal.

First Lieutenant J. E. Metzler, from 52d, Fort Hancock, to student, C.A. School, Advanced Course, Fort Monroe.

First Lieutenant C. J. Odewiller, Jr., from student, C.A. School, Fort Monroe, to Panama, sailing New York, August 25.

First Lieutenant P. F. Passarella, from student, C.A. School, Fort Monroe to Panama, sailing New York, August 25.

First Lieutenant E. D. Peddicord, from Hawaii, to 2d, Fort Monroe.

First Lieutenant W. A. Perry, from student, C.A. School, Fort Monroe, to 3d, Fort Stevens.

First Lieutenant G. F. Powell, Watertown Arsenal, to student, Ordnance School, Advanced Class.

First Lieutenant J. F. Rodenhauser, from student, Ordnance School, Watertown Arsenal, to student, Ordnance School, Aberdeen Proving Ground.

First Lieutenant P. A. Roy, from student, C.A. School, Fort Monroe, to the Philippines, sailing New York, September 11.

First Lieutenant J. A. Sawyer, U.S.A.M.P., *General J. Franklin Bell*, Fort Worden. Previous orders amended.

First Lieutenant W. M. Skidmore, from Ordnance School, Aberdeen Proving Ground, to Panama, sailing New York, September 11. Previous orders revoked.

First Lieutenant C. M. Snyder, retired, April 30.

First Lieutenant A. P. Taber, from student, C.A. School, Fort Monroe, to Panama, sailing New York, August 25.

First Lieutenant H. F. Townsend, from A.M.P., *General Franklin J. Bell*, Fort Worden, to Panama, sailing San Francisco, July 7.

First Lieutenant J. H. Twyman, Jr., from student, C.A. School, Fort Monroe, to Panama, sailing New York, August 25.

First Lieutenant M. G. Weber, Fort Monroe, to student, C.A. School, advanced course.

Second Lieutenant J. O. Baker, from student, Ordnance School, Watertown Arsenal, to student, Ordnance School, Aberdeen Proving Ground.

Second Lieutenant L. R. Drake, from student, Air Corps Training Center, Randolph Field, to the Philippines, sailing San Francisco, June 11.

Second Lieutenant A. D. Robbins, from 62d, Fort Totten, to Air Corps Primary Flying School, Randolph Field.

Second Lieutenant J. W. Romlein, from 61st, Fort Sheridan, to the Philippines, sailing New York, May 19.

Second Lieutenant Oren Swain, from 61st, Fort Winfield Scott, to Hawaii, sailing San Francisco, June 12.



THE CONTRIBUTORS

Major CLARE H. ARMSTRONG was born in Minnesota in 1894. He is a graduate of the U.S.M.A. (1917), the Command and General Staff School (1936), the Battery Officers' Course, Coast Artillery School, and the Field Officers' Course of the Chemical Warfare School.

Major Armstrong's initial service was in the Infantry, as 2d lieutenant, 1st lieutenant, and captain. In 1921 he transferred to the Coast Artillery Corps, and has been with it ever since.

At present he is on duty as personnel officer, Office of the Chief of Coast Artillery.

First Lieutenant FRANK P. CORBIN, JR., C.A.C. is a native West Virginian. He is a graduate of the University of West Virginia, the United States Military Academy, class of '31, and is at present completing the Basic Officers' Course at Fort Monroe.

The article which he prepared for this number of The JOURNAL is the outgrowth of his experience as officer in charge of the records section of the 62d C.A.

Dr. H. A. DeWEERD is Professor of History at Denison University. Steady readers will remember his splendid portrait of General Pershing. In this issue he adds a second—the almost legendary figure of T. E. Lawrence. Since his last article Professor DeWeerd has acquired a Ph.D. from the University of Michigan. This news filled us with alarm; we were afraid that he might take unto himself the traditional heaviness of his brother Doctors of Philosophy. This article—his first since the great event—has put an end to all such notions.

Major ALVA F. ENGELHART, C.A.C., was born in Missouri, January 31, 1895. Graduate of the 1917 class at Missouri Wesleyan College; of the Command and General Staff School; of the Coast Artillery School; and of the School of Fire, Fort Sill, Okla. Attended Massachusetts Institute of Technology, majoring in electrical engineering for one year. Has been on duty with the Coast Artillery Board for four years. Has served two tours in the Philippines, some time in France, and is now en route to Hawaii. Major Engelhart has been recently assigned to the development of submarine mine matériel. It is understood that the fine work done by him has been, in a large part, responsible for the progress recently made in this development work. Although handicapped by the confidential nature of the subject and the restrictions that were placed upon him, he has succeeded in throwing new light on the subject of mine defense.

IMPERTINAX is the cloak of invisibility employed by a young officer new to our pages. He has no history; and

his education awaits the future. Therefore he is still in that happy state which is enjoyed, so the philosophers assert, by the citizens of backward, unwarlike nations. Having no past glories to recount and no laurels needing the water changed, he devotes his time to pondering why his elders say those funny things. The result of one such private session with himself is "Tactics Isn't Common Sense."

* * *

We can't decide whether The JOURNAL attracts Ph.D's or Ph.D's attract The JOURNAL. Maybe it's mutual. In any event, Dr. DALLAS D. IRVINE brings the total number of Ph.D's in this issue to exactly two; and that, we believe, establishes a record in JOURNAL history.

Dr. Irvine is no military *dilettante*. Should you have any doubt on that score we suggest that you ask the learned gentleman to lend you a copy of his thesis, *The Genesis of the General Staff*, prepared for his doctorate.

Dr. Irvine is an ex-cadet. Needless to say, that "ex" came about through demerits, not studies. In spite of this body blow to his military career, Ex-Cadet Irvine's heart and interest are still with the Army. In fact, his extensive military background has won him an important post in the military division of the National Archives.

* * *

Major WILLARD IRVINE, C.A.C., is a left-handed Georgian with distinctive drawl who likes hot biscuits three times a day—and gets them twice. Long a loyal supporter of The JOURNAL, he first appeared as a contributor in 1926 and was rewarded with an official panning for lese-majesty. Peace was arranged, and belated apologies from ye editors were accepted, with subsequent writings appearing to come from a less impetuous pen. Sometime Coast Artillery School instructor in AA tactics, upon which subject he has written extensively. Last year at the War College received a bit of kidding from friends for being cited as an authority on antiaircraft artillery tactics by an Associated Press news dispatch based on a series of articles appearing in The COAST ARTILLERY JOURNAL. Took part in the early AA-AC Exercises and was antiaircraft artillery officer on the staff of the commanding general of the attacking air force at the 1934 Fort Knox exercises.

Is stationed at Fort Winfield Scott, likes California climate—what there is of it—golf, vacationing with his wife and two daughters.

* * *

1st Lt. JOHN ARCHIBALD SAWYER, C.A.C., was educated at the Pingry School at Elizabeth, New Jersey, the Albany Academy at Albany, New York, and the United States Military Academy. Graduated from the Military Academy in 1928 and from the Battery

Officers' Course at Fort Monroe, Virginia, in 1934. Has been interested in radio and followed its development since 1919 when the first attempts at broadcasting were started. Recently he designed and constructed an anti-aircraft intelligence broadcast service equipment which can be used for the dissemination of intelligence by both wire and radio. Author of a manual covering details of the system and its operation. This antiaircraft intelligence broadcast service has been in regular operation for the past two years and is reported a success.

* * *

Major BERNARD SMITH, Corps of Engineers, was born in New York, September 28, 1889. Graduated as civil engineer from the Polytechnic Institute of Brooklyn in 1914. Prior to entering the service was employed as civil engineer for the United Fruit Company in Honduras and also by several railroads in the United States and Canada. Entered Plattsburg Training Camp in 1917 and emerged from it as an "acting lieutenant." Commissioned first lieutenant, Engineer Reserve, July 5, 1917. Served overseas with the 1st Division until September, 1918, and since the war with the 2d and 13th Engineers in Texas and Virginia.

He was topographical inspector with the 14th Engineers on aerial mapping, military survey of Luzon, where it is understood he collected information which formed the basis for the excellent article appearing under his name in this issue. At present he is on duty on river and harbor work in the Nashville District.

Major Smith's hobby is the collection of accounts by participants in military campaigns, particularly those of the Napoleonic Wars. He has had numerous articles published, some of which appeared in the *Cincinnati Enquirer*, *China Weekly Review*, *Philippine Magazine*, *Manila Times*, *Military Engineer*, *Infantry*, *Cavalry* and *COAST ARTILLERY JOURNALS*.

* * *

GERALD V. STAMM, sometime sergeant, Company F, 26th Infantry, 1st Division, was born in 1892 on a farm in Ohio as the lesser (masculine) half of twins.

Two brothers having served in the Marine Corps, Mr. Stamm displayed his confidence in the family judgment by enlisting in the Infantry of the Regular Army February 6, 1914. After service on the Mexican Border he went to France in June of '17. There he saw five-star action, received two wounds, and attained the rank of sergeant. He severed his connection with the Army October 14, 1920, at Fort Jay, New York.

Mr. Stamm has also found time to get married and acquire three children. His chief hobbies are reading and refighting America's wars. He claims ex post facto generalship of a high order based on the fact that he has never lost an armchair battle.

Major EDWARD H. TALIAFERRO, JR., C.A.C., was born in Texas, December 14, 1887. Graduated from V.M.I. 1908. Is a graduate of the battery officers' course and advanced course, Coast Artillery School. Before entry into service was a civil engineer on the construction of the overseas extension to Key West of the Florida East Coast Railway; went to France with the 17th Engineers in July, 1917; served as company and battalion commander there. Upon return in 1919 went to work on the construction of Wilson Dam as general superintendent. Stationed at Key West, Florida; Fort Crockett, Texas, with the 60th C.A.; Fort Monroe with the 61st C.A.; Fort Mills with the 59th; and the University of Alabama for one year. Was at corps area headquarters at Omaha as aide, and claims he performed every odd job in corps area headquarters except C.G., and chief of staff—even did a little construction work at Fort Omaha. Went to Fort Leavenworth in charge of the construction of the 98 apartments on Pope and Doniphan Avenues, and as a member of the Staff and Faculty.

Considered to be one of the most outstanding antiaircraft machine-gun experts in our branch of the service. Is a practical machine gunner who always gets results. His ideas were the basis for one of the most promising of machine-gun sights developed. We look forward to some other worthwhile contributions from him in the near future and hope it will be a practical machine-gun sight.

* * *

It is with regret that we write *finis* to Major RICHARD G. TINDALL'S widely acclaimed "The Will of the Leader." Not only has the series inspired many fan letters, but the circulation department reports that renewals have been both numerous and prompt since the appearance of the first instalment. And, if additional evidence were needed of the interest that Major Tindall's story has aroused, we have it in recent new subscriptions carrying the proviso that they start with the issue that carried Part I. It is with much satisfaction that we pass on the good word that Major Tindall is by no means written out.

* * *

JAMES W. WADSWORTH, Congressman from New York, distinguished statesman. Spanish-American War Veteran. United States Senator from 1914 to 1926 during which period he played a most important part in the drafting of the National Defense Act. Known and respected throughout the combined services for his continuous constructive activities in the interest of adequate National Defense. As an example of the regard in which he is held we repeat a statement recently made by a former Chief of Coast Artillery concerning this able legislator:

"Mr. Wadsworth is one of the finest men in public life and my service with him during the formulation of the National Defense Act of 1920 was the most interesting and instructive period of my life. I value his friendship and esteem it very highly."

BOOK REVIEWS

WAR MEMOIRS. By David Lloyd George, Vol. V. 1917-1918. Little Brown and Co., Boston. \$3.00.

An event of the magnitude of the World War cannot be assayed and evaluated until time has made it possible to collect, correlate and study all of the evidence, direct or contributory. With this goes the desirability of learning all we can of the principal actors in the drama, the part they played, their reaction to and influence upon contemporary events.

One of the principal rôles was played by David Lloyd George, the only Prime Minister of a European Power to hold his portfolio throughout the entire period of the War and the subsequent peace negotiations. To him more than to any other individual goes the credit (or the blame) for piloting the British Empire through the tempestuous political and economic seas that all but wrecked it in 1917; therefore not even a cursory study of the War could be made without giving the closest attention to the thought and actions of the man who occupied one of the key positions. Of equal importance are his observations upon contemporary men and events.

In volume V of his memoirs he reviews the break-up of the Imperial Russian Army, the weakness and vacillation of the Kerensky Government and the rise of Bolshevism, engineered by an organized minority; the ascendancy of Clemenceau to power and his ability to wage relentless war; the squabble and bickerings between the politicians and the professional soldier (a condition that is not new to us and one that is bound to develop under a democratic form of government) resulting in the fall of Lord Robertson after he had almost wrecked the British Ministry.

Throughout the entire volume there runs the thread of the distrust, amounting at times to hatred of the author for Sir Douglas Haig who is accused of possessing many cardinal faults with scarcely any redeeming virtues. This great soldier is portrayed as being obstinate, pig-headed, narrow-minded and wasteful of human lives in attempting to carry out projects which any military mind must have known were foredoomed to failure. But worst of all was his failure to make proper distribution of his forces when he knew almost definitely the time and place of the great German offensive of March, 1918. If this is true one can readily understand the oft-repeated accusation that "the British muddle through."

General Gough, Commanding the Fifth Army, was made the military goat for the nearly irreparable disaster but the author places the blame, unwelcome foundling though it is, on the doorstep of the British Commander in Chief, doubtlessly political and military students will argue vehemently over the identity of its sire for many years.

Lloyd George's distrust and open dislike of Marshal Haig is counterbalanced by his admiration of Marshal Foch, whom he brands as easily the greatest military leader of the war. Throughout the narrative there stands out in bold relief the military jealousies between the principal allied powers, each fighting doggedly its own war with little regard for coöordination and teamwork so essential to military success. This is better expressed by a remark attributed to a French General to the effect that "the glory of Napoleon is dimmed when one recalls that he fought coalitions all of his life."

The closing chapter is the one holding the greatest interest for the American reader. Our slowness to start war preparations on a grand scale almost caused the Allies to lose the war, and certain it is that without the help of the United States it could not have been won. Only as a result of the most urgent and prodigious prodding was the Wilson Administration goaded into action. Our shortcomings in the manufacture of the implements of war is dwelt upon in considerable detail. Paradoxical as it may seem the greatest industrial nation in the world, after seventeen months of effort, produced only a tiny trickle of munitions where we should have loosed a torrent.

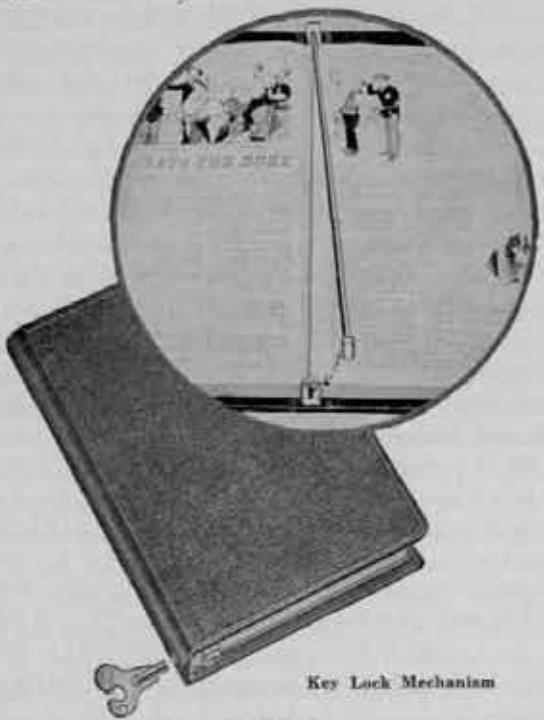
The author devoted many pages to an attempt to justify the European point of view relative to the transport and employment of American troops. Both the British and French utterly failed to comprehend the necessity for an autonomous American Army; time and again their point of view was urged upon all responsible heads of departments and finally was appealed direct to the President. Pershing is pictured as having an obstinate military mind more intent upon his own selfish aggrandizement than he was upon winning the war. "Against the stickiness of the professional general officer standing for his rights, intelligence and common sense struggle in vain." Little did the author intend that this tirade directed at the C. in C. of the American Army would increase his prestige with the American public. If Pershing did nothing else his name would go down in history as one of our greatest Generals for the fight he waged for the formation of an independent American Army. No greater mistake could have been made than to brigade American doughboys with either French or British units. "The American soldiers were superb. That is a fact that is acknowledged not only by their friends and British comrades but by their enemies as well. There were no braver nor more fearless men in any army, but the organization at home and behind the lines was not worthy of the reputation which American business men have deservedly won for smartness, promptitude and efficiency."

The book is an invaluable contribution to the mass of writings having to do with the war period, as such it will be studied and consulted, especially as source material, for

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generations. Notwithstanding its greatness and value its composition and arrangement leaves much to be desired. It bristles with repetition and sentences so awkwardly constructed that only by the closest application can they be understood. But who are we to interfere with the free flow of the stream of popular acclaim that will be accorded this great book by polluting it with bits of criticism?

E. E. B.

* * *

CHEMICALS IN WAR. By Lieutenant Colonel Augustin M. Prentiss, CWS, and Major George J. B. Fisher, CWS. New York: McGraw-Hill Book Company, 1937. 739 Pages; Appendix; Illustrated; Bibliography, \$7.50.

Up to now the seeker after light in chemical warfare has been limited to the restricted publications used in our military schools, or to German, Russian or French texts for which no published translations exist. The appearance of Colonel Prentiss' book remedies this situation, for it is the only comprehensive treatment of the subject that has been published in English. Moreover, it is safe to say that for completeness, accuracy, and form no foreign treatise compares with this one.

Technical information on gases and chemical weapons is covered from the viewpoint of the scientist, while the tactical application is discussed from that of the soldier.

Nearly one-half of the book is devoted to tactics and technique. The general treatment is foreshadowed in the early chapters by these two statements: "the military value of chemicals derives not from their deadliness *per se*, but from their direct influence on tactical situations"; and, "the number of outright casualties inflicted will be increasingly high in proportion to deficiencies in gas discipline."

The arrangement of the book is excellent; each of the five parts being complete in itself. Definite conclusions furnish a summation at each chapter's end; and no doubt is left as to the author's opinion on the various topics. It is certainly not light reading; but the serious student will find it an essential reference text.

The Infantryman will be chiefly interested in the chapters on the chemical technique and tactics of the infantry, artillery, and air corps, and those on defense against chemical attack. The excellent chapter on the protection of civil population is timely and should stimulate further thought.

The book is well illustrated and documented. A comprehensive bibliography and index are furnished. The author has been in chemical warfare for the past twenty years; is a scientist (Ph. D. George Washington University); and has graduated from Leavenworth and the Army War College.

It is a pity that the volume's seven-and-a-half-dollar price may deter many officers; but there can be no excuse for failure to include it in every organization library.

A. H. W.

I WANTED WINGS. By Beirne Lay, Jr. New York: Harper & Brothers, 1937. 350 Pages; 8 Illustrations; Appendix; \$2.00.

This is the story of how fliers are made today at Randolph and Kelly Fields. The author took training as a flying cadet of the Air Corps in 1931, and then had two years of active duty with the 20th Bombardment Group, Langley Field, Virginia.

If you like vicarious adventure *I Wanted Wings* will fill the bill. Here are thrills, danger, speed, and—terror. Some of the chapters are unforgettable. For instance: Aerobatics, Thirty Minutes—how it feels to dive a ton-and-a-half of pursuit ship at 350 per. Another: They Bring Me Back Alive—the thrilling account of a bailout far above Langley Field into the icy waters of a winter ocean. The author has included one of the few truthful accounts of the grim two-month period the Army Air Corps flew the mails.

The appendix gives clear and succinct definitions of the aviation terms most commonly encountered in the language of the flier. The questions are answered and the information is offered briefly and conversationally.

The book is recommended to the ground soldier who wants to know more about the men who fly in our Army today. It will not stay long on the shelves of an organization library for it will be read; and each reader will urge his friends to read too.

FRONT LINE AND DEAD LINE. By Granville Fortescue, New York: G. P. Putnam's Sons, 1937. 310 Pages; 12 Illustrations; Index. \$3.00.

A former officer in the U. S. Army, Granville Fortescue has been in every important scrap—as either soldier or correspondent—from the San Juan Hill business in 1898 to the current uproar in Spain.

Despite the increasing difficulties besetting the gathering of war news from 1914 on, Fortescue succeeded in getting himself pretty much around and about the whole show. Result: in the major part of his book, he pictures the World War as he saw it from many fronts—Belgian, French, German, Russian and Turkish. His stories run the gamut from anecdotes, such as a London newspaper office's method of furnishing him the "sinews of war" in the shape of gold sovereigns, to a stirring eyewitness account of the British landing at Gallipoli; from the story of an exclusive interview with the Belgian King Albert, to a particularly vivid picture of winter fighting on the plain of Poland.

The last two chapters are of more recent vintage, and record his first-hand impressions of the Spanish civil war.

We confess a weakness for stories by war correspondents. If your mental underpinning is deficient in the same respect, you'll find in this book a few hours of extremely entertaining reading—with, perhaps, something to think about after you've finished it.

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THE UNITED STATES ARMY IN WAR AND PEACE. By Colonel Oliver L. Spaulding, Field Artillery. New York: G. P. Putnam's Sons, 1937. 855 pages; 35 maps. \$6.00.

Colonel Spaulding's latest work combines three major literary virtues—thoroughness, accuracy, and entertaining reading.

Its 855 pages give an intimate and detailed history of the growth and development of the U. S. Army from colonial days to the actual present. This, as the author points out, "is not the same thing as a military history of the United States." Nevertheless the book also constitutes an excellent military history; every important event in our martial annals is succinctly described, and the peacetime activities and achievements of the army are discussed with equal clarity and emphasis. As a history of the oldest of our national institutions, and the one most intimately connected with the development of our country, this work cannot fail to be informing to any citizen of patriotic instincts and interest. The soldier, whatever else he may have read, will find here much that is new and instructive, and many times worth his while.

This book is in no sense a compilation; it is an entertaining story, freshly told and illuminated by thousands of valuable facts and striking incidents. This, of course, makes for easy and enjoyable reading. A well-selected bibliography plus a thorough documentation of sources afford a fruitful field for the student anxious to ferret out more details of any given event. The maps, though prepared with more than ordinary care, have in some instances been so greatly reduced that they are difficult to read. The book concludes with a brief but adequate index.

The most striking and perhaps most commendable feature of the book is the author's dispassionate treatment. He writes history, free from criticism and propaganda. He states *all* the facts as he found them. And though he neglects no side of a question, he avoids controversy. Even certain matters which military men have come to regard as outrages are treated only with a gentle irony. This is history as history should be written.

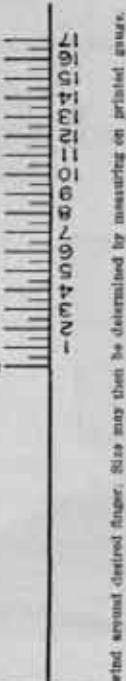
Colonel Spaulding has definitely enriched the already rich literature that deals with our army. His book should fill an important place in our libraries. P. S. B.

CONTACT. By Charles Codman. Boston: Little Brown and Company, 1937. 247 Pages; \$2.00.

After graduating from Harvard in 1915, the author joined the American ambulance field service in France. He joined the American Air Service after our entry into the war and was assigned to the 96th Aero Squadron, Day Bombardment Group.

He tells the story of the work and play of his bombing squadron during the last six months of the war.

The slow and lumbering bombers of two decades ago made daytime bombing flights the most hazardous of aerial missions. "Cold meat" was the name for a bomber



Measure from this point

and "cold meat" Lieutenant Codman's flight turned out to be. During the St. Mihiel offensive his flight of six planes was totally destroyed while on a daylight bombardment. During the action the author brought down three planes and then crashed ingloriously in German territory. The remainder of the war he spent in German prison camps.

The light touch and lack of heroics makes it an amusing and readable tale—a good book for the dayroom library.

* * *

ELEANOR OF AQUITAINE. By Melrich V. Rosenberg. Houghton Mifflin Co. 296 Pages; 8 Illustrations. \$3.50.

By Colonel Robert E. Wyllie, C.A.C., Ret.

Eleanor of Aquitaine was a romantic figure in a romantic age. She was queen to two Kings—Louis VII of France, and Henry II of England. In her own right she was sovereign of Aquitaine and Poitou, the fairest and most highly cultured regions of Europe in the twelfth century. She was the granddaughter of the first of the troubadours, mother of a troubadour king and had a famous troubadour as her lover, so she has every right to the title of "Queen of the Troubadours and of the Courts of Love."

The military reader will not find anything in this volume to help him in his strategic and tactical studies.

There is plenty of war: two crusades, the wars between Henry II and his rebellious sons, and barons' wars innumerable. These are merely incidents in the story and the author makes no effort to analyze them from a military standpoint. But let not that deter one from reading the book; if he loves romance—and who does not?—he will find much enjoyment and profit.

The book portrays the personality of Eleanor of Aquitaine and describes the prevailing social conditions and civilization of France and England. Queen Eleanor was born in 1122 and died in 1204, so her life practically coincided with the intellectual revival known as the Twelfth Century Renaissance. That was the time when Europe emerged from the chaos of the Dark Ages; when chivalry blossomed forth to relieve somewhat the barbarities of the preceding centuries; when troubadours sang in the south of France and minnesingers in Germany; when the Arthurian legends came into existence and the songs of Charlemagne and his paladins were written. That century saw the advent of Gothic architecture and stained glass windows. The culture of the Orient was tapped for the benefit of Europe and scientific treatises were translated from the Arabic to lay the foundations for the researches of Roger Bacon, Albertus Magnus and others. It was a wonderful century and Eleanor's contribution to the movement was noteworthy. Not only was she herself a poet of no mean ability, but by her patronage of intellectuals she did much for civilization.

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The three chapters on the troubadours and courts of love are especially worthwhile. They present an excellent pen picture of a most interesting phase of mediaeval life, a phase which has so completely vanished that it is difficult for one of the Twentieth Century to realize that it ever existed, much less to appreciate it. Mr. Rosenberg has done his best to initiate the reader into the romantic and mysterious past.

* * *

THE MAN I KNEW (*The Intimate Life Story of Douglas Haig*). By The Countess Haig. Edinburgh and London: The Moray Press, 1936. 321 pages; photographs and sketches; \$3.50.

Sir Douglas Haig's story is told somewhat in the manner of a wife loyally extolling her husband across the tea-table. Interspersed with extracts from official and semi-official documents are anecdotes and intimate references to the great, the near-great, and the pre-abdication court of England.

The account of the war deals only with those portions which justify the decisions and actions of Sir Douglas. His elaborate frontal attacks are called "wearing-out" battles, without saying too definitely just who was being worn out. Sir Douglas, it appears, always seemed satisfied with the way things were going, and was certain that his

troops were invariably in the best of spirits. He never failed to prepare for the hoped-for breakthrough and never lost faith in the use of cavalry for exploitation.

The villain of the piece is Lloyd George who hindered and insulted Sir Douglas, and, at times, connived with the French to place him in a bad light. But the King always supported his Field Marshal.

Readers seeking an account of American participation in the conflict must be content with a meager description of the French-English squabbling over who should get control of our troops. Members of the 1st and 2d Division will be astounded to learn that in July, 1918, the French, with British support, made a very successful attack at Soissons. Moreover, the AEF as a whole may be somewhat startled to learn that in the closing days of the war the French had quit, the Americans were too disorganized to fight, and the British alone were carrying the battle.

But, after all, these are things of a more material world. The fallacies do not necessarily flaw the gallant portrait of a general who spent his last years working for the betterment of ex-service men. Despite the lavender-tinted propaganda, the book is a monument to the Countess' love and devotion for her husband. The man she knew was worth knowing; he could be called soldier in any man's army. E. D. C.

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SEE PAGE 91 OF "WARFARE"



-THAT COMBAT PRINCIPLES HAVE CHANGED SO LITTLE WITH THE CENTURIES THAT DURING THE WORLD WAR, BRITISH FORCES CAPTURED MISHNIN IN PALESTINE BY TAKING THEIR COMBAT ORDERS DIRECTLY FROM THE BIBLE?
SEE PAGE 5 OF "WARFARE"



-THAT ALTHOUGH THE VIKINGS BROUGHT CHRISTIANITY TO ITS LOWEST POINT IN HISTORY, THEY PROVIDED THE IMPETUS WHICH STARTED THE WORLD OUT OF THE DARK AGES?
SEE PAGE 285 OF "WARFARE"



-THAT THE "SIEGE" OF TROY, WHILE BEING A TRUE HISTORICAL EVENT, WAS NOT A SIEGE, BUT A LANDING OPERATION?
SEE PAGE 39 OF "WARFARE"



-THAT THE 5TH ROMAN LEGION WAS PROBABLY THE FIRST OUTFIT EVER TO BE TRAINED IN "ANTI-TANK" TACTICS?
SEE PAGE 183 OF "WARFARE"



-THAT WHEN CAESAR FOUND HIS TROOPS GROWING MUTINOUS HE GAVE THEM "CONTENTMENT PAY" BY BORROWING FROM HIS OFFICERS? THE TROOPS WERE SATISFIED AND THE OFFICERS SURE TO BE LOYAL TO PROTECT THEIR "INVESTMENT".
SEE PAGE 174 OF "WARFARE"



-THE "BATTLE-SIGHT" RANGE OF THE BOW, AND HOW HIGH-ANGLE FIRE FROM THIS WEAPON DECIDED THE BATTLE OF HASTINGS?
SEE PAGES 303-310 OF "WARFARE"



-WHAT THE TACTICAL REVOLUTION WAS WHICH FOR SOME TIME MADE CAVALRY THE CHIEF ARM?
SEE PAGE 253 OF "WARFARE"



-SCIPIO AFRICANUS WAS PROBABLY THE FIRST OFFICER EVER COMMISSIONED FOR "THE DURATION".
SEE PAGE 135 OF "WARFARE"



-THE CRUSADERS CARRIED 200 VERY CIRCUMSPECT LAUNDRESS ALONG DURING CAMPAIGNS?
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